

TECHNOLOGY

REVIEW *March* 1951



technology review

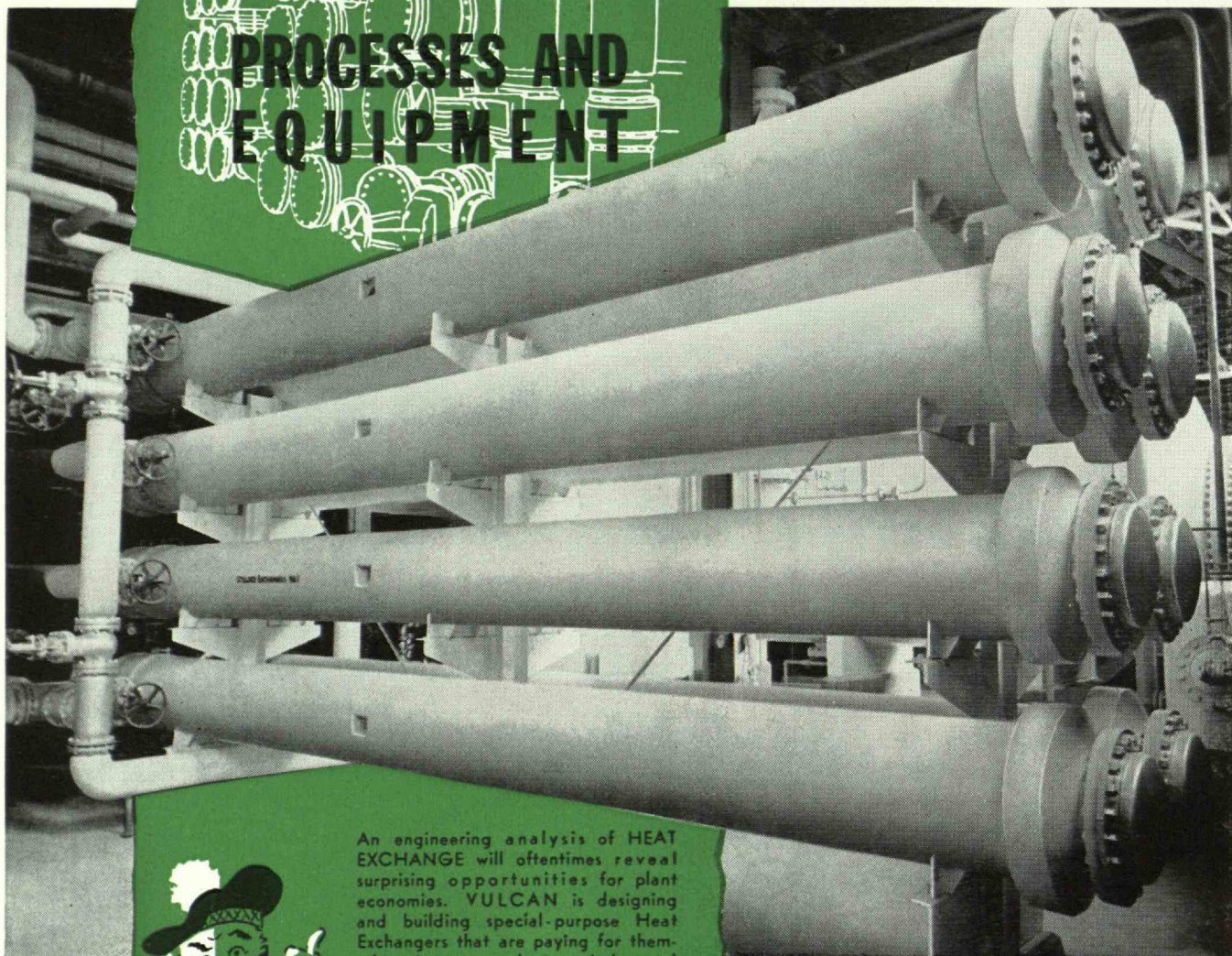
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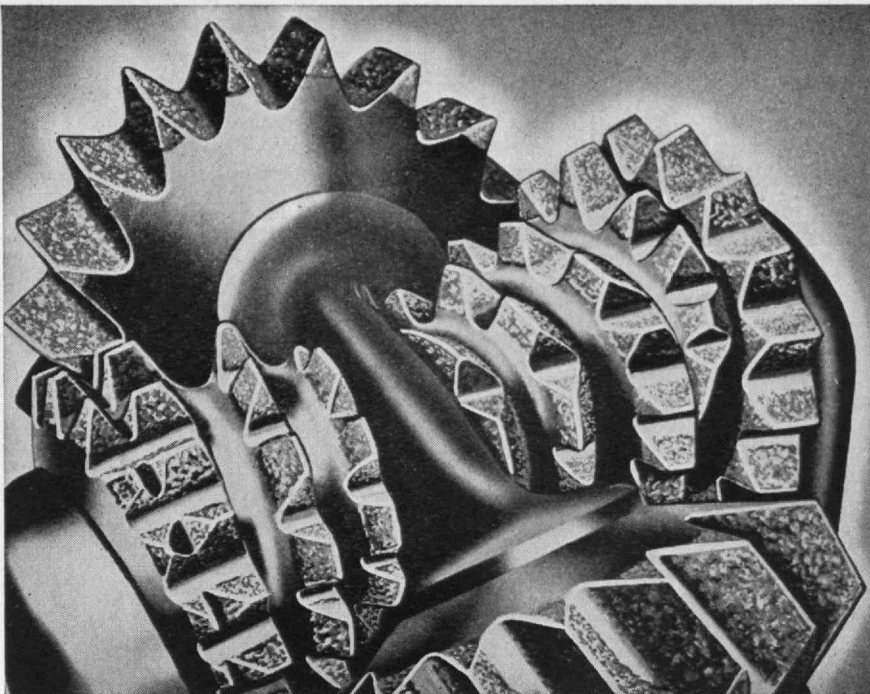
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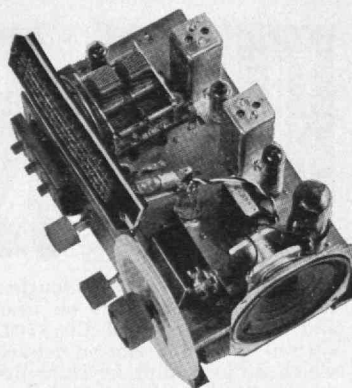
FEATURES: Sensitive and selective superhet circuit. Slide rule general coverage dial with police, foreign, amateur and ship bands clearly marked. Separate bandspread and logging scale usable over entire range.

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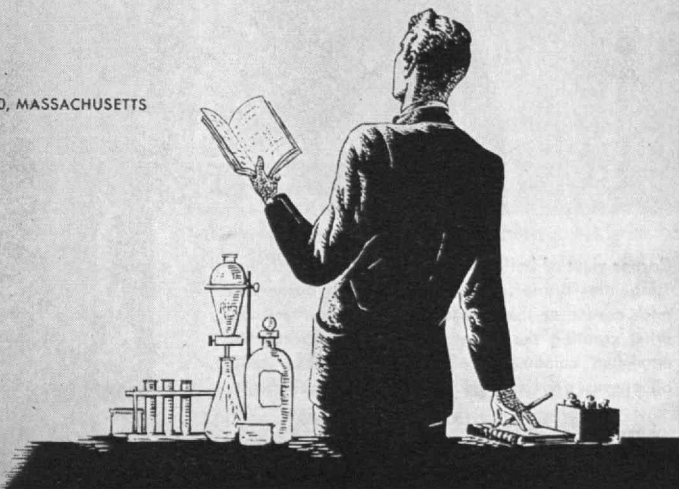
Science has only within fairly recent years been able to make possible the methods needed for revealing the nature of this amazing, essential, black raw material. Development of an electron microscope which can reveal to the human eye the 300 quadrillion particles of a single ounce of black has aided greatly in determining particle size and surface area of all grades of carbon black, yet there is still much to be learned.

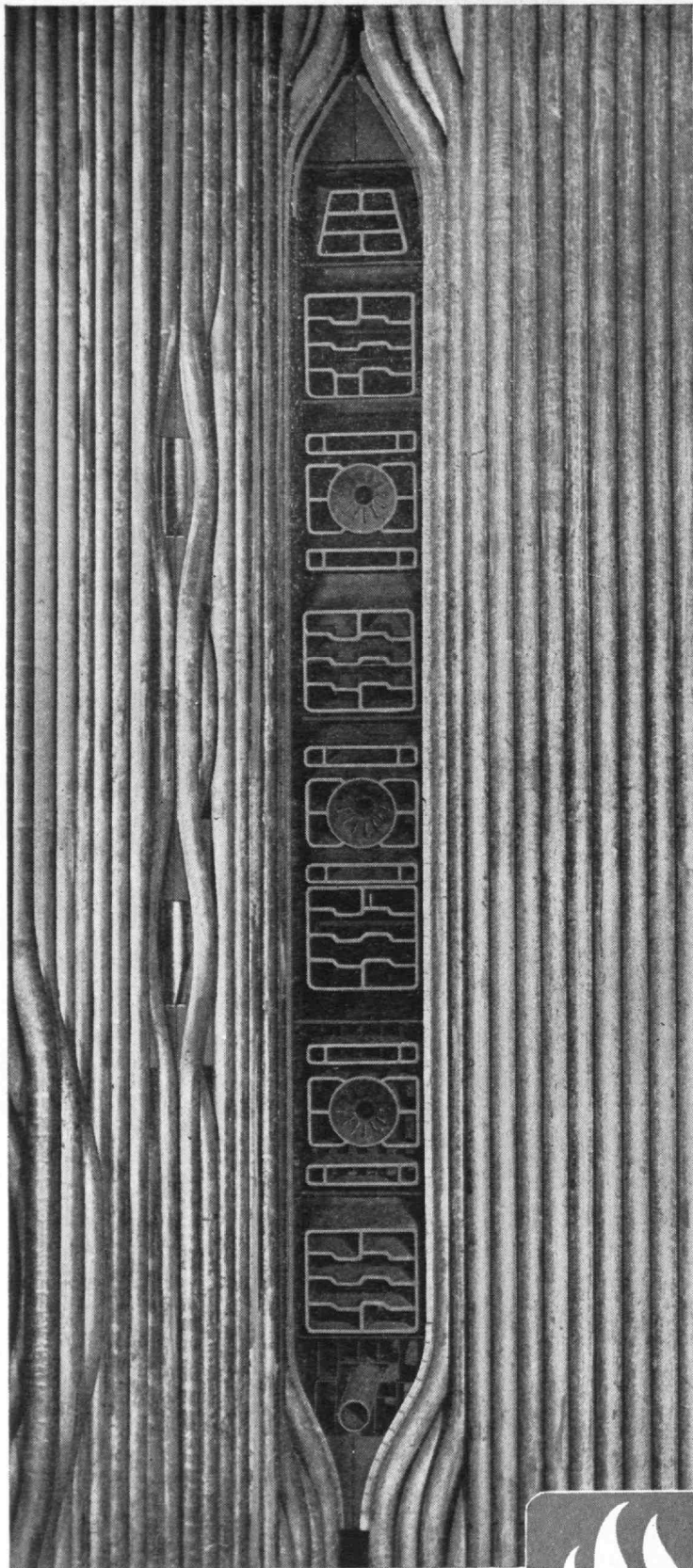
This progress has helped the Cabot Research Laboratories in their work of defining the required properties and interpreting the behavior of Cabot Carbon Blacks in their many applications.

Cabot research has already assisted in the development of more than forty different grades of black for commercial use and continues to contribute its share to the rapidly growing industry knowledge of the basic material itself.

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Corner view of boiler furnace showing a C-E Tilting Tangential Burner. Flame streams from burners in each corner of the furnace impinge upon one another creating the intense turbulence required for maximum combustion efficiency. Pulverized coal, oil or gas may be used singly or in combinations.



a carburetor— 12 feet high

Just like your automobile engine, a steam generating unit needs the right mixture of fuel and air for the most economical operation. C-E Tilting Tangential Burners, the mammoth "carburetors" of large C-E Steam Generating Units, not only assure this proper mixture but also provide, automatically, the uniform steam temperature so necessary for efficient turbine performance.

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The C-E Tilting Burner has long since achieved the status of a major advance in power station practice. In fact, so well has this design met the exacting temperature requirements of modern turbines that C-E Steam Generating Units equipped with Tilting Burners have been purchased since the war to serve an aggregate of more than 10 million kilowatts of new electric generating capacity.

While the C-E Tilting Burner is applicable only to large power station boilers, it is typical of many major advances in the fields of fuel burning and steam generation developed by Combustion Engineering—Superheater. Collectively, these developments mean top standards of economy and reliability in all steam generating units — large or small — that bear the C-E nameplate.

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TRENDS

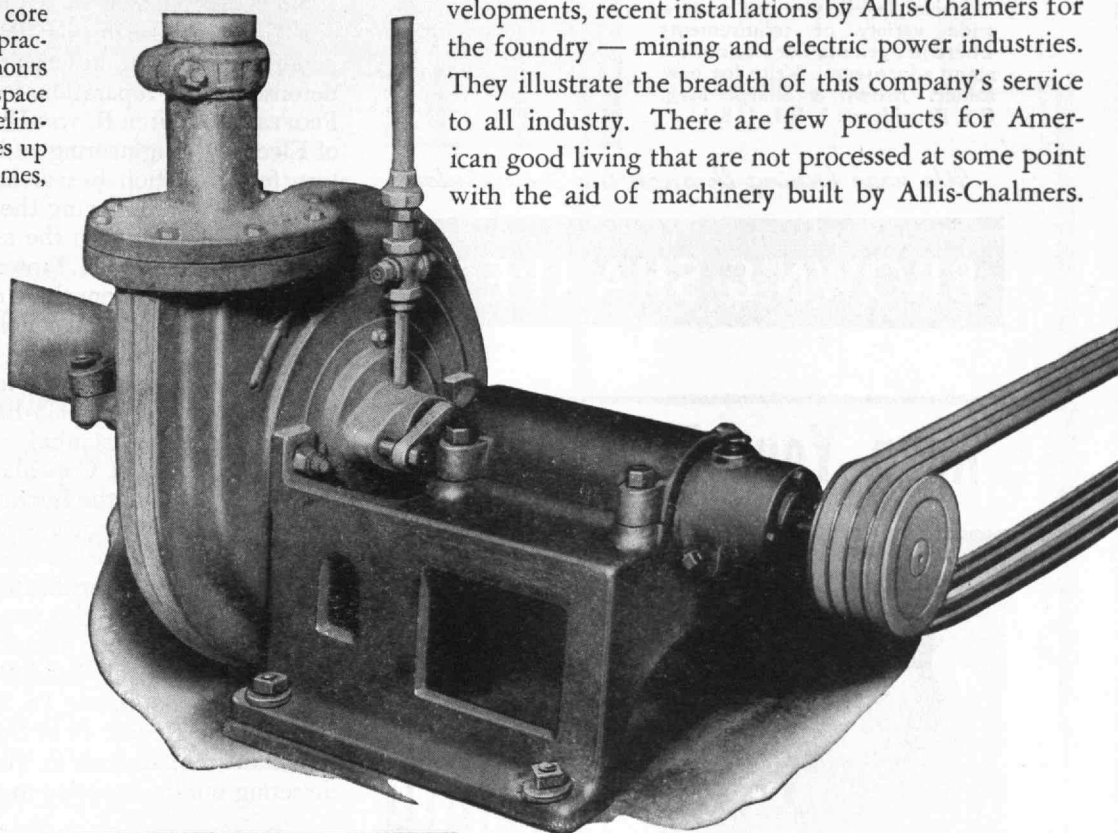
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Rubber lining of this Allis-Chalmers pump is formed around a steel skeleton and secured in the lining. Cementing is not used. This unique method provides a strong, rigid lining not subject to cracking and blistering." Pump is used especially for fine mesh materials up to 325 mesh.



NEW machines, new methods and advancements in equipment engineering help industry increase production and lower costs. Here are new developments, recent installations by Allis-Chalmers for the foundry — mining and electric power industries. They illustrate the breadth of this company's service to all industry. There are few products for American good living that are not processed at some point with the aid of machinery built by Allis-Chalmers.

Advanced Steam Turbine Design

New 20,000 kw Turbo-generator shown is one of three Allis-Chalmers turbines for this utility. Advanced features of Allis-Chalmers line included in this unit are: accessibly enclosed piping, simplified foundation requirements; centralized controls; and a hydrogen cooling system of unmatched simplicity for the generator.

A-3081

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ALLIS-CHALMERS

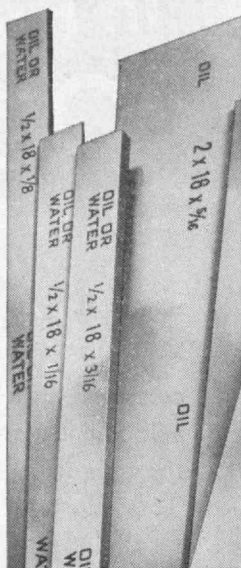


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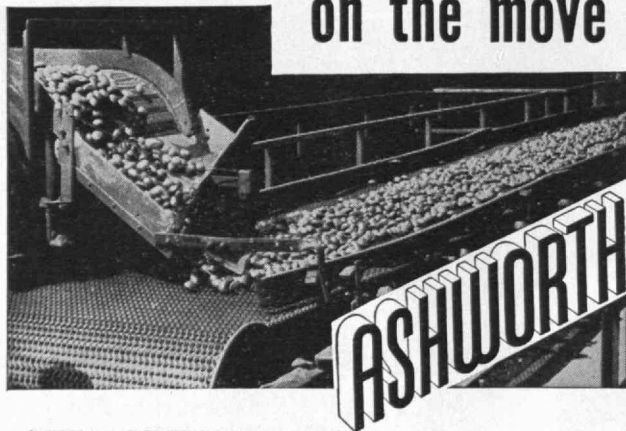
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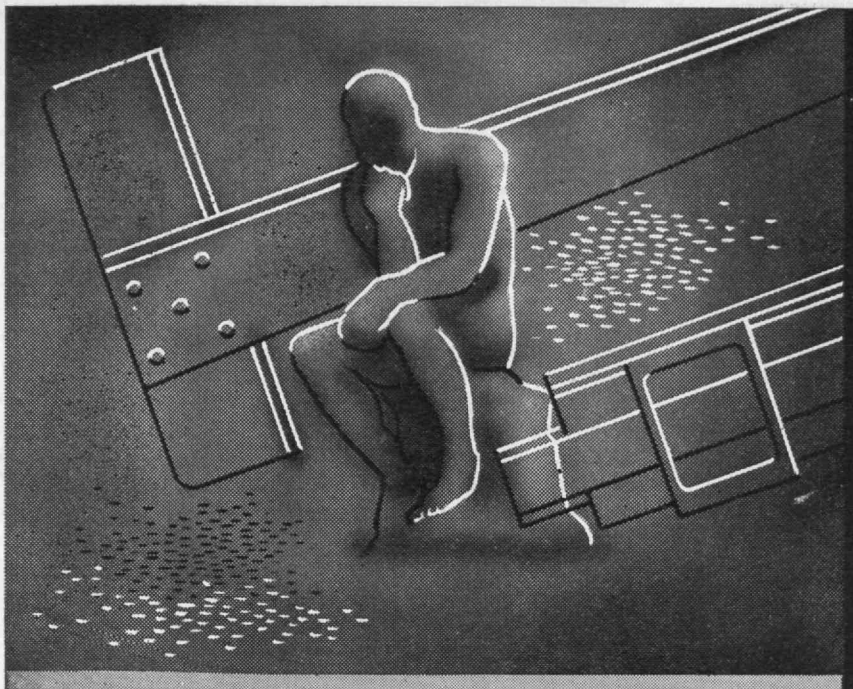
THE TABULAR VIEW

Germ Warfare. — In "The Mystery of the Sweating Sickness" (page 243) readers of The Review are given a glimpse of the warfare which germs, or viruses, conducted against the English and German populace about four centuries back. This peculiar malady is described by JAMES A. TOBEY, '15, who reminds us that there is no guarantee against the recurrence of *Anglicus sudor*, although we may take much comfort in the progress which has been made in public health, especially during the last century. Dr. Tobey received the Dr. P.H. degree from M.I.T. in 1927, and since then has had a distinguished career in research, administration, law, and writing and editing in the field of public health.

No Peace, No War. — After the hurried dispersal of our Armed Forces during 1946, for the third time in a generation this nation faces the task of rebuilding its defenses. In "Preparation for Defense" (page 245) PROFESSOR ARTHUR R. VON HIPPEL of the Department of Electrical Engineering and Director of the Laboratory for Insulation Research, makes some sagacious proposals for minimizing the bottlenecks in our production program, with the assistance of illustrations by HENRY B. KANE, '24. Professor von Hippel received the Ph.D. degree from the University of Göttingen in 1924 and was Rockefeller Fellow at Berkeley in 1927-1928. The following year he was *Privatdozent* at the University of Jena, and the next three years returned to Göttingen. During 1933-1934 he was a professor at the University of Istanbul, and was guest professor at the University of Copenhagen the following year. In 1936 he came to the Institute as assistant professor, was advanced to associate professor in 1940, and to professor in 1947. For his research during World War II, he received the Certificate of Merit.

The first section of this paper was presented on November 1, 1950, at the annual meeting of the Conference on Electrical Insulation, National Research Council, Pocono Manor, Pa. The entire paper, printed as Technical Report 40 of the Laboratory for Insulation Research, appears in The Review as a means of directing public attention to an important topic.

Calumet. — Ways in which scientists and engineers can smoke the pipe of peace with their public are discussed (page 249) by ARTHUR M. YORK, '37, who comes up with some pertinent and — we think — well-deserved counsel. A graduate of Course IX-B, Mr. York has forsaken the slide rule and the microscope for the typewriter. He has been engaged in science reporting, in publicity, and public relations for the Institute's News Service and subsequently for United States Rubber Company and Westinghouse Electric Corporation. If, heaven forbid, there are any among The Review's readers who hold to the belief that "us engineers don't need no English" or who may be indifferent as to whether the public holds that ice water, rather than red corpuscles, flows through his veins, a perusal of Mr. York's contribution to The Review may throw light on the error of one's ways.



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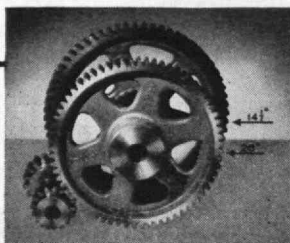
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MAIL RETURNS

Documentary Evidence

FROM DOUGLAS K. MERRILL:

A stroke of pure fate exposed me to the January, 1951, issue of *The Review* recently, and the fascinating article by E. H. Cameron, '13, entitled "The Blasted Bore."

I had never appreciated the tremendous scope of the Hoosac Tunnel construction project with all the odds that nature and politics could produce to combat the development of construction engineering techniques, extending over a period of 25 years. The opening illustration, Profile of Hoosac Mountain, so beautifully lettered and embroidered affected me particularly, because of the signature — "Wm. P. Granger, Chief Engineer."

My father, the late George Field Merrill, who was a civil engineer of some repute in Greenfield and central Massachusetts, purchased his transit and drafting instruments from William Granger some 30 or 40 years ago. Dad was mighty proud of that instrument; it was made by Buff and Berger, #271 with scales graduated in silver, rated as a 15 second instrument if I recall correctly. . . . He often repeated how this transit established the center line of the tunnel within an inch. . . .

William Granger's drafting instruments are neatly stored in a velvet-lined mahogany case which contains a profusion of items. Centered on the case lid is a metal name plate engraved with Granger's name. . . .

It has often occurred to me to offer the drafting kit on loan to Old Sturbridge Village for incorporation with their museum display of early American surveying equipments, but I have hesitated in the absence of any documentary evidence as to origin and historical connection with the Hoosac Tunnel construction. However, your comprehensive article has crystallized my thinking in this respect; the drafting kit might attract more interest if it could be displayed along with a transcript of "The Blasted Bore." The philosophy of Old Sturbridge Village has been to reactivate interest in New England history, and I feel your article is most pertinent to that philosophy. *Sturbridge, Mass.*

[Needless to say, the author and this publication were proud to contribute to the Old Sturbridge Village display through the courtesy of Mr. Merrill—Ed.]

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A tip from Detroit!



If you want to find out what tire gives the best all-around performance, take a tip from Detroit's car makers! They're experts. They really test tires before they buy them—and they put more Goodyear Super-Cushions on the new cars than any other tire! (Above: Cadillac Square, Detroit.)

A tip from America!

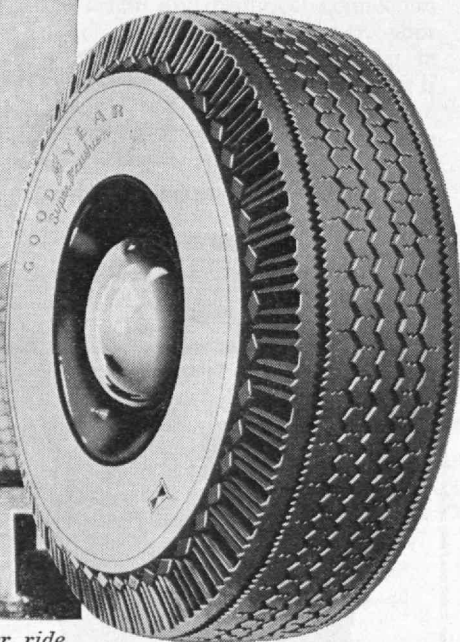


Take another tip—from the motorists of America! They buy more Goodyear Super-Cushions than any other low-pressure tire. Why? Because the more they drive the more they find that the Super-Cushion can't be matched—for safety, soft ride and long mileage. (Above: Yosemite Falls, Cal.)

A tip from the World!



Go wherever cars are driven, and you'll discover that more people, the world over, ride on Goodyear tires than on any other kind. Doesn't it stand to reason that the tire that gives the most people the greatest satisfaction is the best tire for you to buy? (Above: Heerenveen, Holland.)



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C. E. Patch, '02

THE TECHNOLOGY REVIEW

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EDITED AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

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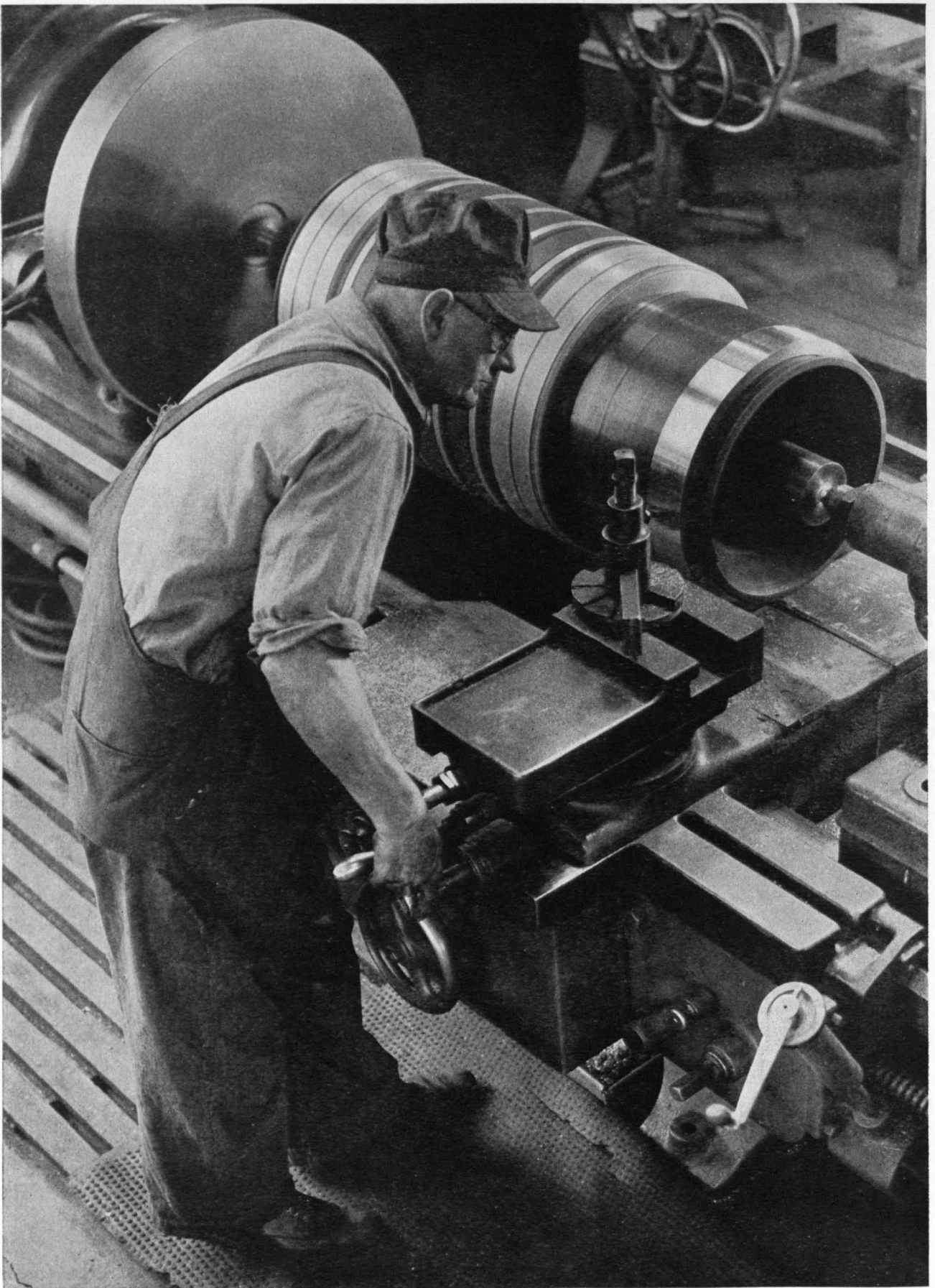
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Published monthly from November to July inclusive on the twenty-seventh of the month preceding the date of issue, at 50 cents a copy. Annual subscription, \$3.50; Canadian and foreign subscription, \$4.00. Published for the Alumni Association of the M.I.T.: John A. Lunn, President; H. E. Lobdell, Executive Vice-president; Horatio L. Bond, Allen Latham, Jr., Vice-presidents; Donald P. Severance, Secretary-Treasurer. Published at Hildreth Press, Inc., Bristol, Conn. Editorial Office, Room 1-281, Massachusetts Institute of Technology, Cambridge 39, Mass. Entered as second-class mail matter at the Post Office at Bristol, Conn. Copyright, 1951, by the Alumni Association of the Massachusetts Institute of Technology. Three weeks must be allowed to effect change of address, for which both old and new addresses should be given.



Owen from Black Star

"Hear ye not the hum of mighty workings?"

—John Keats

THE TECHNOLOGY REVIEW

Vol. 53, No. 5

March, 1951



The Trend of Affairs

Free Will

A REMARKABLE example of how "nature provides" is the ability of some animals to maintain themselves in healthy condition through free choice, under certain conditions, among various food elements offered to them in isolated, purified form. Demonstrations of this faculty have been conducted by depriving laboratory animals of a certain nutrient, as for example a vitamin or a mineral, until their health was endangered through lack of this particular nutrient. Then the animals were allowed a choice of drinking plain distilled water, or water in which the lacking nutrient had been dissolved. In some of the studies the animals voluntarily drank enough of the fortified water to rectify their lack of the nutrient, and thus restore themselves to a state of well-being.

Even more striking demonstrations of this sort have been conducted by offering animals the various constituents of a complete dietary, each in separate form. Thus the animals might be presented with separate dishes of a pure fat, a pure carbohydrate, a protein concentrate, and of each of the minerals and vitamins required by the particular species under observation.

On occasion, the animals have consistently selected enough of each one of the nutrients to provide themselves with a balanced ration, and thus maintain themselves in good condition. Sometimes similar results have been obtained in studies of this type using human infants as subjects.

When the faculty of free choice of necessary nutrients was discovered, conjecture logically arose as to whether the human adult possesses such an ability, and if so whether this faculty holds the key to assurance of a nutritious dietary. Much public-health educational effort is expended toward teaching people what types of foods to choose for an adequate nutrient intake; if this objective could be attained merely

through spontaneous choice, is not such effort needless?

As so often is true in biological experimentation, the teleological interpretation suggested by some of the early studies in free choice of foods was not confirmed by further experience. Subsequent results have varied widely according to the animal species observed, according to the particular nutrient studied, and according to the general plan of the experiment. Although some of the later results resembled the early experience, in other experiments no faculty of discriminative choice of nutrients whatsoever was evinced, and in some studies the subjects actually showed perverse preferences, choosing foods exaggerating, rather than remedying, nutrient deficiencies.

The final word in free choice of foods is yet to be said. The fundamental nature of the psychobiological drives that underlie food preferences and aversions is still a mystery. But authoritative interpretation of the available knowledge indicates that free choice definitely does not provide a reliable basis for a dietary of maximal nutritive value, either for the human being or for domestic animals.

To Have and to Have Not

IN the fateful game of chess now being played out between the great powers, the capacity to produce steel ranks as a major piece. To keep that piece on the board, the steel industry of this country is currently engaged in a multitude of projects to find new sources of iron ore, to develop the more promising ones (most of them abroad), and to make better use of the leaner ores which, increasingly, will be a major product of our domestic mines. While exhaustion of our own reserves of iron ore is not in any way imminent, particularly if beneficiation of the leaner ores is resorted to, deposits of very high-grade ores are under strain.



M.I.T. Photo

Electrons race down the 21-foot length of this 17-million volt linear accelerator in the Laboratory of Nuclear Science and Engineering at M.I.T. Arthur F. Kip, Assistant Professor of Physics, demonstrates how each section of the intricate high-energy machine is tuned to assure that the equipment operates at full efficiency.

The recent launching of the *Wilfred Sykes*, a Great Lakes ore carrier of record-breaking size, and the planning for at least five other new freighters — as additions to the present ore fleet of 260 vessels — are indications that the Lake Superior region will continue to supply the bulk of our iron-ore requirements. In a limited way, however, the United States is now taking the first steps along the road which Great Britain has been traveling for many years. For generations Britain was the leading producer of steel, in no small part because of her almost ideally located high-grade iron ore and coal deposits. Today it is using domestic ores some of which, containing less than 22 per cent iron, are the leanest used commercially today. In 1948, that country mined 12,200,000 tons of iron ore and imported 8,550,000 tons. Nevertheless, the foreign ore contained 1,200,000 tons more iron than domestic ore.

Although it is not likely that foreign ores will play nearly as dominant a role in this country, imports are already sizable. Once negligible in comparison with exports, imports amounted to 2,824,000 tons in 1946 and 7,500,000 tons in 1949 — coming mostly from Chile and Sweden. It has been predicted that imports may be 14,000,000 tons in 1960, or about 15 per cent of the estimated total consumption. The expanding needs of Great Britain and other importers of iron ore must also be considered in relation to existing foreign mines.

The major steel companies of the United States have therefore been systematically exploring the world for new sources of high-grade iron ore. Since iron is the

second most common metal in the earth's crust, it is not surprising that large deposits have, in fact, been found. Actually the deposits uncovered in the past five years are of greater size than those discovered during the preceding 45 years of the Twentieth Century. It takes many years, however, for a major deposit to be brought into production, particularly since those conveniently located have long been exploited. Not only must facilities be provided for the operating staff and the mine actually opened, but generally, power plants, railroad lines, docks, and loading facilities must be constructed. Additional unloading facilities in the United States are also being prepared. Thus, the very large ore deposits in the Labrador-Quebec region, with total proven ore now exceeding 400,000,000 tons, have been known for about two years. It is expected that the first ore will become available in 1955.

Deposits of almost fantastic size, totaling perhaps more than 1,000,000,000 tons have been discovered in Venezuela. Ore from some of these deposits, on which development started about eight years ago, may already be reaching this country. One of the most fabulous of the Venezuelan strikes is Cerro Bolivar, a veritable mountain of iron discovered during a systematic survey of central Venezuela. This hill, about six miles long and rising 1,800 feet above the surrounding savanna, looked promising on aerial photographs. A party was dispatched by jeep, and saw immediately that a major find had been made. The ore body is four miles long, with a maximum width of 4,000 feet and an average depth of 230 feet, and does not even require stripping. Reserves of about 500,000,000 tons of high-grade ore have been proven in this one deposit, and similar ore bodies are known to be in the vicinity. One of them, San Isidro, is controlled by the Venezuelan Government, which has now restricted new exploration activities by private concerns in this vicinity. Overall, the region is said to rival the Mesabi Range in size. The main problem is transportation, as it is with many huge deposits in Brazil. A long railroad through difficult terrain, or a shorter railroad coupled with heavy dredging of the Orinoco River is necessary before hundred-car trains of ore start to rumble to the coast. Much of this ore is expected to reach American furnaces via the Mississippi, with substantial amounts to be landed at ports along the East Coast.

Shortly before this item went to press, announcement was made of plans for the building of two huge steel plants on the Delaware River — one of them believed to be the "largest single steel expansion in history." Both of these plants will depend mainly on foreign ores.

How Continents Grow

MANY conjectures and theories have been advanced to account for the formation of the earth and, more especially, the present structure of the earth's surface. Astronomers, geologists, physicists, and chemists have all made their contributions to past and present views on such matters. Although perhaps the most prevalent view has regarded the earth's surface as formed from the cooling of masses ejected from the sun, other possibilities exist. One of these holds that

the earth, formed at relatively low temperatures about three billion years ago, may be heating up by radioactivity and that its continents may still be growing.

Measurement of radioactivity in rocks has brought to light evidence which indicates that the earth may have been formed at relatively low temperatures. According to Patrick M. Hurley, '40, Assistant Professor of Geology at Technology, the earth may be heating up because of radioactivity. Age measurements on the rocks of the North American continent by radioactivity methods suggest that the continent has grown by irregular increments from the time the earth was formed; and that, roughly, the outer half of the earth's radius may be producing growing continents.

Measurements of heat flow to the surface and measurements of the heat generated in the near-surface rocks by radioactive disintegration provide a budget of heat that must be met in all considerations of the depth of the near-surface types of rock. Information from gravitational and seismic studies has been combined with the thermal data to set limits to the amount of heat coming from the interior of the earth, and also on the thermal gradients at depths below the crust.

From such radioactivity, gravitational and seismic evidence, the maximum temperatures possible under steady-state conditions indicate that at least some of the surface lavas cannot be merely melted samples of material near the earth's surface, but rather that they must be derived from partial fusions at depths of at least several hundred kilometers. The studies, conducted by Professor Hurley, also indicate that quantities of materials rich in silicon, aluminum, and alkalis have appeared at the earth's surface, presumably separating from material less rich in these constituents at depths of several hundred kilometers.

The data at hand suggest that the earth is heating up as a result of radioactive disintegration. The studies also show that the process of the formation of continents is currently an active and continuing one, rather than the last phases of thermal adjustment in a cooling planet. Ideas as to the thermal history of the earth and its surface are, therefore, changing.

Lever House, formerly headquarters of the Lever Brothers Company in Cambridge, has been purchased by the Institute to house a School of Industrial Management. This modern six-story structure is located on Memorial Drive, commonly known as "Research Row," between the main group of the M.I.T. academic buildings and Kendall Square. Costs of establishing the new school and its educational program for a decade are provided by a gift from the Alfred P. Sloan Foundation, Inc.

The new school will prepare young men to meet the exacting demands of industrial management.

M.I.T. Photo

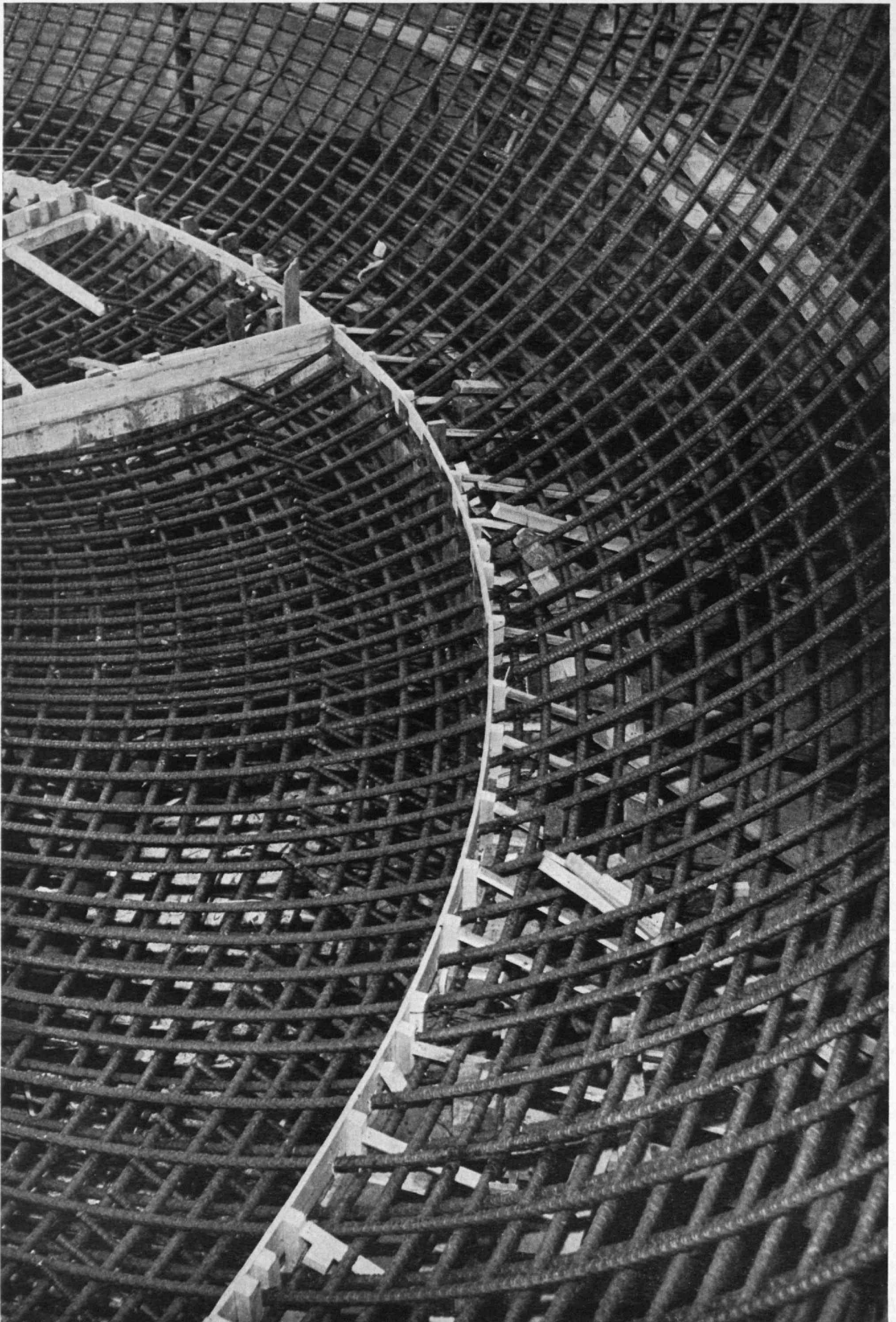
Cathode Rays Sterilize Grain

ELECTRONICS, the universal servant of modern technology, gives promise of carving out a new field for itself in reducing the cost of the housewife's breadbasket. At present in the United States, there is an annual loss of a large quantity of grain valued at millions of dollars, due to infestation by weevils, prime pests of the elevators, millers, and bakers. Chemical methods of killing these pests have not proved as desirable as one would wish, and the use of heat is not possible because it injures the baking qualities of the flour.

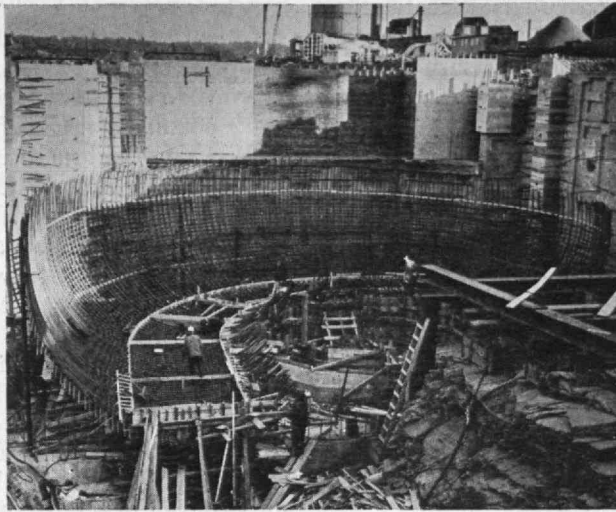
The Department of Food Technology at the Institute has been working for several years in co-operation with the High Voltage Research Laboratory of the Department of Electrical Engineering on this problem, and has found a means of destroying the pest without the use of heat or chemicals. This "cure" involves the use of supervoltage cathode rays (electrons) produced in a Van de Graaff accelerator. The results obtained to date look extremely promising. Extensive tests have shown the methods of avoiding destructive effects on the wheat. Based on the energy requirements to accomplish this sterilization and the output of the newest model of the Van de Graaff accelerator, one such machine should be able to handle the entire output of a modern flour mill. The cost of such a procedure should be in the order of a small fraction of a cent per pound of flour.

The required dosage of cathode rays, to destroy the weevils in foods, produces essentially no rise in temperature of the wheat. One may look upon this process as a machine gun (the Van de Graaff accelerator) firing a large number of very high-velocity bullets (cathode rays) at the weevils. The advantage of this method over the existing chemical and heat treatment is that it destroys the weevils and eggs that are within the grains of wheat, as well as those on the surface, without injury to the wheat. Since essentially no heat is produced in the process, it holds great promise in the sterilization of heat-sensitive pharmaceuticals.





Modern art is having a heyday under the guise of functionalism. Industrial designers sometimes even appear to take great pains to streamline the shapes of appliances and equipment, such as electric toasters, drill presses, and other objects which are essentially stationary. Possibly there is some merit in such practices even though the purpose is frequently not discernible to those trained in engineering. But it would probably be difficult to find patterns and designs more pleasing than those of truly well-designed works of



engineering. One such interesting example is given on the page at the left where details of concrete scroll-case reinforcement in the construction of the 15,000 kilowatt hydroelectric station of the Holyoke Water Power Company are shown. The smaller illustration shows reinforcing steel in place for lower half of concrete scroll case, looking downstream. Note scroll-case form on riverbank in middle background. The photographs were made by Neil Doherty of Holyoke for Jackson and Moreland, Engineers, of Boston.

Metals without Change

THE techniques of mass production are a well-established and integral part of our American economy. Mass production contributes a great deal to our standard of living and has made it possible for us to attain a measure of world importance on a basis of our tremendous productive capacity. Although large-scale production and the assembly line are now accepted as a matter of course, it was only 40 years ago that Henry M. Leland, the founder of the Cadillac Motor Car Company, was ridiculed roundly when he claimed that every part of any Cadillac car would fit interchangeably in the chassis of any other Cadillac of the same model. He had to justify his statement with a public demonstration. Three stock cars were dismantled and the parts thoroughly intermingled. Two hundred and ninety-nine different parts were picked at random from the stock room and mixed among the remaining parts. The three cars were then assembled; and, to everyone's amazement, the new parts fitted and the cars performed perfectly.

At the time, this performance created considerable excitement, but the secret of success was a set of combination gauge blocks which had been purchased by Leland from C. E. Johansson of Sweden. These gauge blocks enabled the Cadillac plant to machine every part of an automobile with such accuracy that the parts were interchangeable. This achievement had not been previously accomplished.

In 1923, Henry Ford guaranteed the precision of his new assembly line by bringing C. E. Johansson, Inc., to the United States and installing the entire company at his Dearborn factory. The importance of Johansson's gauge lay in the fact that it consisted of a hardened steel block, ground to a hitherto unheard-of degree of parallelness, and that it was heat treated to remain dimensionally stable over a period of years.

Precision gauge blocks have since been made by other manufacturers, but the stability problems have not been studied scientifically until recently. Each manufacturer has used his own seasoning treatment, which is intended to stabilize these blocks against dimensional changes. The seasoning treatments were not always uniformly successful; and it was not un-

common to find that a gauge block, which was merely left in storage without usage over a period of years, would change its dimensions by two- to 100-millionths of an inch. Such changes were sufficient to render the blocks worthless since an uncontrolled fluctuation of dimensions would destroy the standardization necessary for high production.

A scientific study of the causes of dimensional stability in hardened steels was undertaken at M.I.T. several years ago under the direction of Benjamin L. Averbach, '47, Assistant Professor of Metallurgy, and Professor Morris Cohen, '33, of the Department of Metallurgy. This program has not been concerned with a mere haphazard searching for new stabilizing treatments, but has concentrated on finding the fundamental reasons for dimensional changes.

As a result of the studies, it was found that hardened steel is dimensionally unstable because of phase transformations which occur on aging at room temperature. After hardening, a gauge steel contains martensite, which is the hard constituent, and a certain amount of retained austenite, the soft constituent. The retained austenite is a phase which is left over from the high-temperature heat treatment prior to quenching. The first step involved the development of a precise x-ray method for determining quantitatively the percentage of retained austenite present in the steel. It was then found that this retained austenite decomposes, to some extent, at room temperature and causes the steel to expand. In addition, the martensite undergoes tempering at room temperature and this results in a contraction. The net effect, therefore, is an expansion, a contraction, or a combination of both, as the aging proceeds. Precise techniques for a quantitative evaluation of the rate of the phase changes were developed, and from these studies considerable information about the nature of the reactions was obtained. For example, it was possible to set up equations which express the expansion and contraction components of dimensional instability, thus predicting the linear changes of hardened steel as a function of the aging time and temperature.

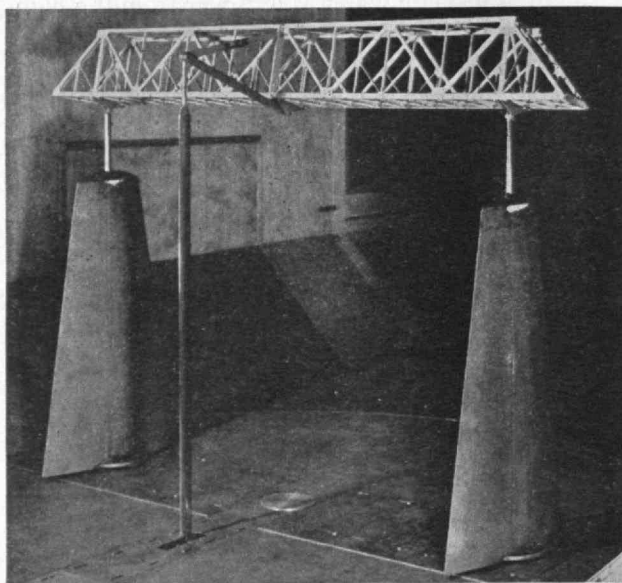
The above-mentioned research illustrates a happy combination of circumstances. An understanding of the fundamentals of the underlying phase changes

made it feasible to evaluate various heat treatments and steels for the production of gauge blocks. At the same time, by means of the precision measuring techniques which were developed in this study, it became possible to secure information on the nature of phase changes in hardened steels, which could not have been otherwise obtained. The investigation is still continuing and these techniques are now being applied to the study of such phenomena as the rate of precipitation hardening in aluminum alloys, the tempering of alloy steels, the dimensional behavior of Invar materials, and the effect of retained austenite on the elastic limit of structural steels.

Wind-blown Bridges

THE familiar nursery song regarding the fate of the London Bridge may have some historical basis or it may be merely the result of whimsical fancy. In any case, we have made much progress since the day when bridge design was largely empirical or based on hand-book engineering, and when bridge failures could, and did, occur all too frequently. Even today, however, bridge failures occasionally occur with disastrous results, as events at Tacoma Narrows, Wash., in 1940, and at Three Rivers, Quebec, on January 31, remind us. At least in part, perhaps, such unfortunate events may be attributed to lack of complete understanding of stresses due to heavy winds.

Although the design of railway and highway bridges in the past has, of course, taken account of the wind loads, the magnitude of such loads was quite arbitrarily assigned. Considerable data are available giving drag coefficients for various shapes subject to the action of an air stream. However, very little data are available for the drag on an assembly of shapes, such as a complete structure. The problem is complicated by the unusual shape of the members of a bridge structure and also by the shielding effects on the elements to the leeward.



In a research program aimed to improve safety and economy of bridge structures, wind loads on bridges are being studied by means of models, as shown above.

A research program is being conducted by the Department of Civil and Sanitary Engineering, with the co-operation of the Department of Aeronautical Engineering, to determine wind loads on bridges and to make possible construction of bridge structures which will be safer and more economical. In this program, wind tunnel tests have been made on complete bridge models (shown in the illustration) to determine the magnitude of the load and its variation with wind velocity. The variation with angle of attack in both vertical and horizontal planes has also been studied. It has been tentatively concluded that a drag coefficient of 1.0 may be used if this is based upon a certain effective area, with the effective area computed as the total area of the windward members, plus various percentages of the shielded areas. With the loads thus determined, a dynamic analysis has been made to study the behavior of the structure under gust loadings.

A larger bridge model, which will include greater detail, is under construction. In the new model, it will also be possible to determine the loads on various parts of the structure, independently. In this way, more complete information on the effect of shielding will be obtained.

The program, which is sponsored by the U. S. Army Corps of Engineers, is under the general supervision of Robert J. Hansen, '48, Associate Professor of Structural Engineering, and under the direct technical supervision of J. Melvin Biggs, '41, Assistant Professor of Structural Engineering. The testing and structural analysis were conducted by John S. Archer, '48, research associate, and John M. Cord, '50, research assistant, both of the Department of Civil and Sanitary Engineering.

Diet and Your Dentist

ATTEMPTS to determine whether the development of caries, or tooth decay, is affected by diets containing foods grown in areas where high and low incidence of caries is found, have been under way at the Institute's Department of Food Technology in a program directed by Robert S. Harris, '28, Professor of Biochemistry of Nutrition.

A statistically significant higher incidence of dental caries has been found to occur in hamsters who were fed diets of corn and dried whole milk produced in New England, as compared to those fed similar foods grown in Texas.

Recent studies by Dr. Abraham E. Nizel, of Tufts College Dental School, and Professor Harris have shown that the effects on the teeth could be attributed both to the corn and the milk. Neither Texas corn nor Texas milk alone inhibited dental caries; either the New England corn or the New England milk in the diet produced dental caries. Thus it appears that a caries-producing factor in the New England foods rather than a caries-preventing factor (that is, fluorine) in food of Texas origin is the cause of the results attained.

Experiments designed to identify this caries-producing factor are under way in the M.I.T. laboratories. The studies are supported, in part, by the Charles H. Hood Dairy Foundation.

The Mystery of the Sweating Sickness

How Capable Would We Be to Cope with the Strange Malady of the Middle Ages if It Should Suddenly Recur?

By JAMES A. TOBEY

ONE of the most mystifying episodes in history was the sudden appearance and the equally sudden disappearance of a strange and deadly disease, an exotic malady which the world never had known before and never has seen since. Where this terrible scourge came from, what it was, where it went, and whether it will ever come back are mysteries still awaiting solution by medical and sanitary science.

This unique and lethal disease was known at the time as the *Anglicus sudor*, which the student of Latin will readily translate into the English sweat. It descended upon England out of the blue in the time of the Tudors, flourished at intervals for nearly a century, caused five devastating epidemics in which many thousands of people perished, and then vanished as abruptly and as mysteriously as it had come. Among the many peculiar features of this strange distemper was the fact that it seemed to attack only the English, both Norman and Anglo-Saxon, and that it by-passed the Scots, the Irish, and the French.

All this happened some 400 years ago, to be sure, but it is of interest and significance today, not merely because of the dramatic elements of mystery involved, but because something like this might and could happen again. We know that many forms of life on this planet of ours have become extinct, like the mastodon, the dinosaur, and the pterodactyl, but we do not know for certain that the lives of bacteria and viruses can be similarly extinguished. Perhaps the virus of this mysterious sweating sickness and the germs of other pestilences are lying dormant, waiting for the favorable opportunity to strike again.

On the very day that the new and hitherto unknown disease first came to England, a young man named Henry Tudor defeated and killed the usurper, Richard III, at the decisive battle of Bosworth Field. The date was August 22, 1485. It marked the end of the Wars of the Roses which had ravaged England for 30 years, and brought to the throne the red rose of the House of Lancaster.

Hardly was the battle over, however, when an epidemic assaulted the victorious troops of Henry Tudor. Cases of this strange illness occurred suddenly and without warning, usually at night or in the early morning. The first symptoms were a chill and tremors of the body, accompanied by a high fever and great weakness of the system. Then came a horrible sweating, which one doctor of the period quaintly described as: "A great swetyng and stynkyng, with redness of the face and all the body, and a contynual thirst, with a grete hete and headache because of the fumes and

venoms." It was this profuse and malodorous perspiration which gave to the disease the name of the English sweat, or the sweating sickness.

The ailment so decimated the forces of Henry Tudor that it prevented any celebration of his brilliant victory over an army which was three times the size of his own, and caused the postponement until October of his coronation as Henry VII. Disbanded soldiers from Henry's army carried the pestilence to London, where the outbreak reached its height in September, less than a month after its first occurrence at Bosworth. So rapid and fatal was the spread that in less than one week the disease had carried off two Lord Mayors of London in quick succession, as well as six aldermen and numerous other notable and important persons. Unlike many of the plagues of the times, this one afflicted the rich and the strong as impartially as the poor and the weak, and in the short course of five weeks it had caused as many deaths in England as had resulted in the entire 30 years of the brutal and ferocious Wars of the Roses.

The course of the sickness was as rapid as its onset, with a high fatality, death often ensuing within the day or even within a few hours after the first symptoms. "There were some dancing in the Court at nine o'clock that were dead at eleven," says a contemporary account of this epidemic. It was reported, furthermore, that only about one person out of a hundred recovered from the malady, although this figure is probably exaggerated. One attack did not confer an immunity against subsequent infections in the few who survived. Cardinal Wolsey, the leading prelate of England, is said to have suffered the disease on three different occasions.

The first epidemic of this fearful *Anglicus sudor* was confined strictly to England and the English, for whom it displayed a startling partiality. Despite the many contacts with Scotland and Ireland, the disease remained within the borders of England, and it was not inflicted upon the many Celts and Gaels who lived, worked, and mingled in England. The Celts and the Gaels readily explained this immunity on the basis of a certain racial superiority, but the true biological reason is an enigma.

After flaring up like a sudden conflagration in dry tinder, this first epidemic of the sweat rather quickly burned itself out. Within a few months it had vanished as rapidly as it had appeared, and nothing more is heard of the disease for 20 years. It was almost forgotten, a matter of unpleasant legend, when suddenly it reappeared.

This second onslaught of the sweating sickness began in London in 1507 and soon became widespread throughout England, by-passing Scotland and Ireland as usual. Apparently this outbreak was less potent than the first, since reports of it are meager, in contrast to the stories and tall tales concerning the other epidemics. The second visitation of the sweat soon died out and the people were spared of it for almost a decade. Then in 1518 it returned with increased fury. A new sovereign was on the throne. The redoubtable Henry Tudor had deftly united the militant houses of Lancaster and York by espousing, in 1486, Elizabeth, the daughter of Edward IV. In 1509 Henry VII died and was succeeded by his son, Henry VIII, then a debonair youth who was about 18 years old. A few months after his accession, this Henry was wed to Catherine of Aragon, widow of his older brother, Arthur. Despite the fervid accounts of the six marital affairs of Bluff King Hal, this marriage was a happy one, which endured for 22 years.

When the sweat broke out in 1518, the only living child of this royal union was the weak and sickly Mary, then two years old. Up to this time no female had ruled over England in her own right, and the king desperately wanted a son.

The prospects of a male heir by Catherine had become nil by 1526, so Henry began to look elsewhere. While thus amorously engaged in 1529, the king suddenly packed up and fled from London, the reason for his flight being the fourth and worst of the epidemics of the sweating sickness. This outbreak burst out of the borders of England, crossing the Channel to Calais, but even here it displayed its usual predilection for the English and left the French unscathed. This epidemic caused the closing of the newly established universities at Oxford and Cambridge, and so often took a toll of noble and eminent persons that the malady came to be known as "Stop Gallant."

During this great fourth epidemic of the sweat, one of the more celebrated victims was a young girl named Anne Boleyn, who recently had supplanted her own sister in the affections of the king. During his peregrinations to escape the malady, Henry VIII wrote fervent and passionate love letters to Anne, which no doubt contributed to her recovery. In 1533, after a little difficulty with the Pope, he divorced Catherine and married Anne, who presented him with a daughter, Elizabeth, a very few months later. Among historians there is doubt as to whether Henry actually was the father of the future great queen of England.

The fourth epidemic not only swept over England but crossed the Channel to Germany. In Hamburg the disease killed more than a thousand persons within a few weeks and then traversed Germany with incredible speed, piling up corpses in such towns as Göttingen and Augsburg, where 15,000 persons are said to have succumbed to the malady in the first five days of the epidemic. Eventually it reached Vienna, which was then besieged by the Turks under Soliman, whose army was so ravaged by the sweat that he was forced to raise the siege, and thus perhaps to change the course of history.

The usually phlegmatic Germans were alarmed to the point of mania by this unfamiliar disease, the like of which they never had seen before. Patients were

put instantly to bed and covered with thick bedclothes and furs, while a hot fire was kindled in the closely shut room. The purpose of this drastic treatment was to promote still further the profuse perspiration which was supposed to release the evil humors of the disease, but the actual result was to bathe the victim in the agonizing sweat and to oppress him with the tortures of the damned. In the end he usually succumbed.

The Last Epidemic

As in the past this epidemic subsided of its own accord after a few months, probably having used up its quota of susceptibles. Again the disease lay dormant for about two decades. It returned for the fifth and last time in 1551 during the reign of Henry's only son, the tubercular Edward VI, issue of the inoffensive Jane Seymour, whom Henry had married the day after he beheaded Anne Boleyn in 1536. This last epidemic began in Shrewsbury, took a toll of 900 deaths there in one week, and then spread all over the country—carried, as one historian expressed it, "in a drift of poisonous clouds of fog."

Like all the other epidemics, this one ran its fatal course and then petered out. Unlike all the others, however, this one vanished forever. The strange sweating sickness never returned to England, nor anywhere else, although there was something a little like it in France two centuries later.

What was this mysterious disease? Most of our knowledge about it comes from a lucid and comprehensive report by a famous physician of the times, one John Caius or Kayes, who witnessed and described the epidemic of 1551 and assembled material on the previous outbreaks. From his careful account, and from reports of others, it seems obvious that this weird disease definitely cannot be identified with any epidemic malady that is known today. Some authorities have stated rather positively that the English sweat was merely influenza in a particularly virulent form, but the symptoms as described in the Sixteenth Century are not the same as those of modern influenza. Others have asserted that this sweating sickness was a modified form of typhus fever, but there was no evidence of the characteristic skin rash of typhus in these early epidemics.

The consensus of scientific opinion is that the sweating sickness of the Sixteenth Century was caused by a virus of a variety unknown today, a virus which suddenly appeared from somewhere out of the blue, flourished for a while in a highly susceptible population, and then became extinct or dormant, or possibly went through some kind of mutation.

Why was this particular virus so partial to the English and their Nordic cousins, the Germans? The answer could be that this organism had been existing in milder form elsewhere in the world and that the people exposed to it had built up an immunity, a protection lacking among the English. Such experiences have occurred before among communicable diseases. When, for example, African slaves first brought smallpox to the Americas in the Sixteenth Century, this terrible disease is estimated to have caused about 3,000,000 deaths among the highly susceptible Indians. The

(Concluded on page 268)

Preparation for Defense

*A New Venture of Co-operation between Government Agencies,
Manufacturers, and Scientists Is Urged to Eliminate
Bottlenecks of Production for National Defense*

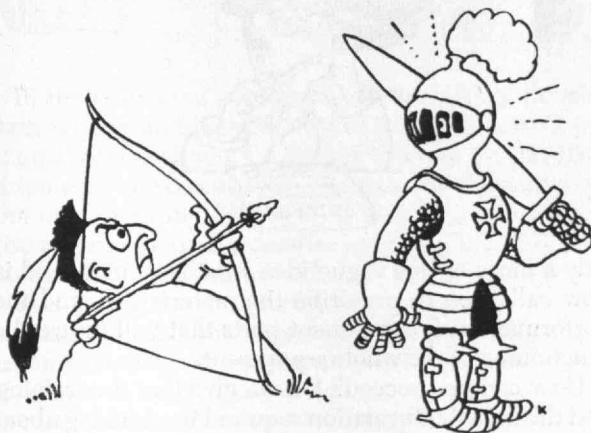
By ARTHUR R. VON HIPPEL

THE emergency is upon us and we will continue to live on borrowed time until our state of preparedness makes a surprise attack a gamble of low returns. It is the meaning of democracy that we all carry our share of responsibility for the present predicament and for whatever the future may bring. Hence we have to consider how far we can play a useful role in this situation.

Real statesmanship is required to maintain the world in its precarious balance until the scales can be tipped in favor of a free world. In this arena we are obviously only spectators after we have voted according to our best judgment. If we feel like it, we may shout our advice; and indeed, scientists and engineers have raised their Cassandra voices since the advent of the atomic bomb. Theirs is the fantasy that created this age of technical civilization and therefore they can visualize clearly the horrors accompanying its self-destruction. But such warning, as long as the age of reason has not arrived, is not much more effective than the shouting of a football crowd; it relieves the tension of the onlookers.

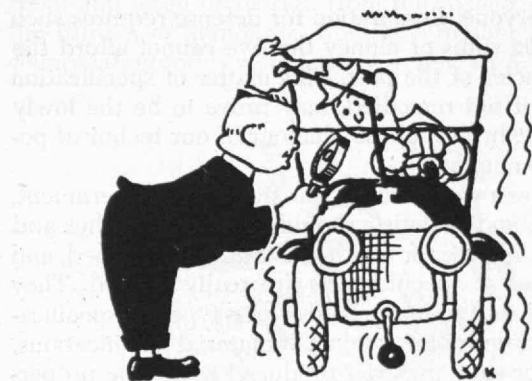
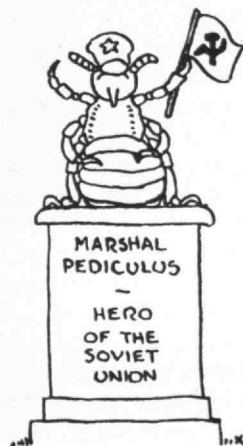
While scientists and engineers may be naïve politically, they are trained to look under the hood of creaking machinery and to analyze the reasons for a

case he should break through our fences. Such surprises will be forthcoming in due time, but our experience in Korea points to needs in a quite different direction. We begin to load ourselves down with so many technical contraptions that we become immobilized, like the knights of the Middle Ages, and fall prey to an enemy fighting in Indian style.



The kind of equipment we really need and should develop has to be decided by a scientific technical high command. We had such organizations during World War II in the form of the Office of Scientific Research and Development and other authorities, and hope that soon an over-all planning authority will emerge that has the wisdom, energy, and power required for the present emergency. However, the kind of equipment we actually get is up to every one of us who has the skill and judgment that develops in daily contact with production, development, and research problems.

In school we learned about the genius of statesmen and generals and their influence on the fate of nations. What we did not hear was that the issue was frequently not decided by them but by epidemics that decimated the available manpower and frustrated a conqueror's designs. Napoleon, for example, was defeated by lice, and it has taken the whole effort of the medical profession, backed up by the experience of every doc-



low output. President Hoover and his committee took such a look at the government organization as a whole, and a reasonable prospect for improvement is forthcoming from its recommendations. It may be time that we scientists and engineers take part in reorganization efforts on levels where the actual work is being done.

The bureaus of the government are already inundated with well-meaning proposals to confront an aggressor with bigger and better technical surprises in

tor, to reduce the threat of epidemics in our time to minor importance. Today, in addition to the diseases of man, we face the diseases of his complex equipment on which he depends for survival. We may have to think about our technical requirements in the same integrated manner as our health requirements, and to rely on the whole profession of scientists and engineers for responsible planning.

Who is at present responsible for the conception, actual performance, and improvement of equipment? Certainly not the manufacturer; he follows government specifications and is supervised by government inspectors. How about the designer? He puts somebody's brain storm on paper, and hands it on to engineers who break it down into component parts. Hence he is neither responsible for the initial conception nor for the final practical execution. Thus we come to the unhappy man who writes the specifications. He has not been concerned with the original planning, has



only a more or less vague idea what is wanted, and is now called on to prescribe the materials in, and the performance of, component parts that will insure the functioning of the whole equipment.

How can he proceed? Do we give him the training and the actual information required for thinking about materials and their performance? No. Do we feed back to him the information concerning the manufacturing problems of components? No. Do we keep him abreast of the actual performance of equipment in the field? No. In consequence, the obvious happens. Faced with an impossible task, the writer of specifications has to look for means to unload his responsibility.

One tack he might take is to write the same specifications as did his grandfather, who is out of reach in a better yonder. But this attempt can backfire, as two examples from World War II may illustrate.



The ballast in the hold of ships obviously should take as little space as possible, and consequently lead has been preferred for this purpose since long ago. The War Production Board requirement for this lead, astonishingly enough, prescribed a content of about 5 per cent of antimony. Thus the much more expensive antimony had to be provided, the alloy prepared, and the end product was several per cent lighter than the original lead. Nobody objected until the war produced a scarcity of antimony. Then, at last, a courageous supplier raised the question: Why include antimony? Nobody knew. A search of old files finally provided the answer: the lead for ballast purposes was once reclaimed from shrapnel bullets and these bullets had been hardened by an addition of antimony!

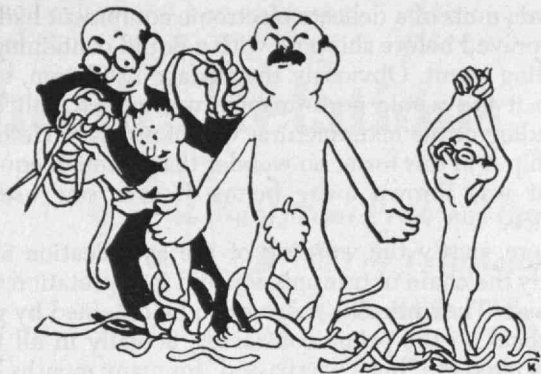
Less hilarious was the situation in the field of plastics. Bakelite, the phenol-formaldehyde polymer, proved to have the appeal for mites and fungi in the Pacific war theater that plum pudding has for men; the same was true of many other materials used by the armed forces. Everyone knew it, substitutes were available, but inexorably for many months the mass production of equipment was initiated with the wrong kind of materials, because the specifications called for them.

Thus our flexibility to respond to a new challenge may be ruined by a specification writer who changes nothing. But equally damaging is the opposite tendency of doing too much. Without the basic training and the facts required for the sound appraisal of a situation, anyone with imagination will see the specter of fearful eventualities. Hence, to protect himself and others, the specification writer may begin to wish-dream for things not yet available, or be so all-inclusive in his demands that he excludes the reasonable solutions. All this, wrapped in a fearsome and long-winded language that requires months to write, and more months to understand, sounds a death knell to initiative and freedom of action.

A war of the future with its terrible dislocations would call for the utmost in initiative and flexibility from everyone. Preparation for defense requires such staggering sums of money that we cannot afford the inefficiencies of the past. This matter of specification writing, if not remedied, may prove to be the lowly louse that brings all the glamour of our technical potential to nought.

What can we do about this situation? Government, industry, and scientists should sit down together and consider whether or not the facts are as described, and what kind of specifications are really needed. They may find that in many fields three types of specifications are required. A volume of material specifications, giving for each material produced today the properties it should have, if well manufactured, and simple test procedures for their evaluation; a similar volume of component specifications which has to refer back to these material specifications and not to prescribe materials found only in Utopia; and, finally, a small volume of target specifications, of better things to come, with reasons why they are wanted, to give industrial thinking and applied research some useful guidance.

To get such volumes and keep them up to date requires a new venture of co-operation between govern-



ment agencies, manufacturers, and scientists. Their experts will have to meet in an atmosphere of impartiality and freedom from red tape that we find today only in our academic institutions. Men will have to be trained for the government service who are able to analyze and expedite service problems, and to make use of the help which science and industry can offer. Many other problems will arise, but they can be solved by calling on the voluntary help of engineers and scientists and making this effort a task of public responsibility.

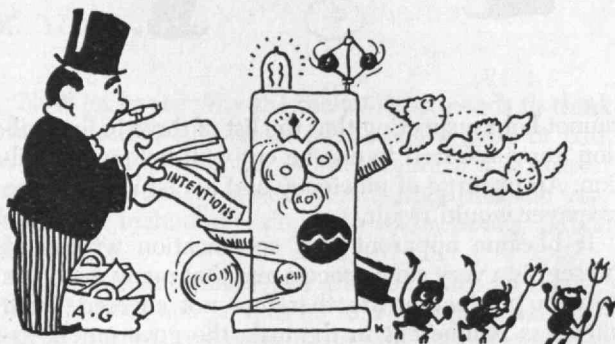
Sequel

The ideas expressed above were presented initially at the Conference on Electrical Insulation of the National Research Council last November. Accepting the challenge, the Conference called a night session with "specifications" as the agenda. Since the problem is of importance to industry in general, it will be of interest also to readers from other fields to learn about the outcome of this experiment. The Conference on Electrical Insulation offered an especially favorable proving ground, because it can muster and arouse a very diversified membership. Specification writers and manufacturers, scientists and engineers from small and large industries, from the Armed Services, the Bureau of Standards, from government and university laboratories were present and confronted each



other in a spirit of constructive criticism, spiced by good humor. More than 70 people attended the night session and were determined to get at the actual facts of the situation.

As always in life, these facts did not blend into a simple black and white picture, but disclosed a multicolored complexity of conditions and actions. It would be natural to let the testimony of the various participants speak for itself; to the surprise of the author this proved impossible. The industries represented stated categorically that they would be indicted for conspiracy under the Sherman Act if their participation became known. Alas, we need a differential analyzer that can distinguish between good and bad intentions!

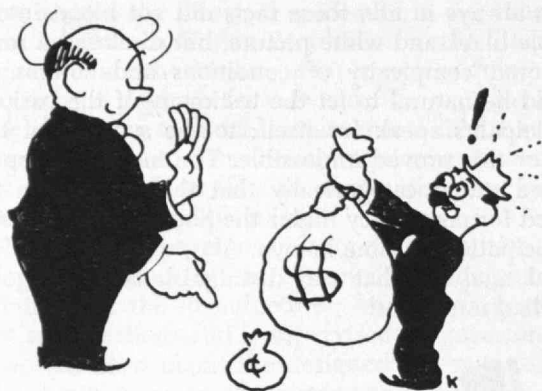


In the remaining paragraphs of this article the author, relying on his memory and some notes, will try to analyze objectively the gist of this session and that of some private discussions. The conclusions drawn by him may be wrong. However, if they help to keep the discussion alive until remedies are provided, they will have served their purpose.

The government specification experts explained convincingly that the situation has greatly improved in some branches of the Armed Services since the end of World War II. Advice, criticism, and active co-operation from industry are being sought and obtained, for example, in the development, testing, and specifying of plastics. By inserting into specifications the clause "or equivalent," the door is opened for reasonable substitutions. The need for rigorous, detailed specifications exists to protect the government and to guide especially the smaller contractor who has no adequate engineering and laboratory facilities, and would not be able to bid on the basis of over-all performance specifications.

While this testimony was assuring, some disquieting information slipped, more or less accidentally, into the picture. The specifications written by one branch of the Armed Services are not necessarily accepted by the other branches; in fact, even a writer of component specifications is not compelled to follow the material specifications worked out by his colleague in the same service branch. As one specification writer, hard pressed by industrial complaints, said: "You like the same item in your household either red, blue, or green; why should not we? Besides, the government purchases three to five million different items in this field; even a master catalogue does not exist. Therefore, how can we know what happens elsewhere?"

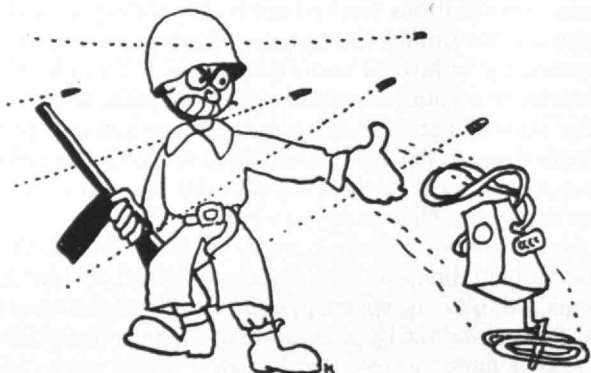
Here obviously some remedy must be found. Our government household just cannot afford to like its items red, blue, or green. Specifications for the identical item, once set by a competent agency, should be acknowledged across the board. Furthermore, one



cannot help suspecting that the list of three to five million items referred to can be cut well below one million. An upsurge of efficiency and a vast relief to the taxpayer would result.

It became apparent that specification writing at present is a very slow process and that many materials now in production are therefore not covered. Such slowness is inherent in the task, the government experts maintain, since the careful setting-up and evaluation of tests and counter-tests in government and industrial laboratories take much time. This is probably true for the classical cut-and-try procedure of ponderous testing. The author believes that frequently the task can be speeded up by calling in scientists and complementing the present empirical methods by a molecular diagnosis of the materials and the "whys" and "hows" of their behavior. It should be possible, and be our goal, to cover any material by a specification at the moment it goes into commercial production.

Specifications should be so clearly written that any field inspector can recognize which clauses are pertinent for a particular application. During World War II, for example, thousands of tons of zinc oxide ordered as pigment for oil paints and excellent for that purpose, were first condemned, and later accepted, only after many months of bureaucratic wrangling, because the material did not pass a certain water-absorption test. In this case the pigment in its actual use would soak up oil, not water; in an opposite instance a specification insisted that a certain insulation not exposed to oil should be resistant to it at -65 degrees. The desperate manufacturer asking for relief got the justifying answer: someone else has met this specification. A more atrocious specification insisted that



certain units of a delicate electronic equipment had to be sprayed before shipping with a liquid containing a wetting agent. Obviously the surface insulation, and with it the whole performance, was ruined, but the pleading of the manufacturer was of no avail. He had to ship it in this form; no wonder that so much equipment was thrown away before it ever saw useful service.

Here, partly the wording of the specification and partly the chain of transmission and interpretation are at fault. Theoretically, redress can be obtained by going back to the prime contractor; actually in all the cases cited the "buck was passed" for many months because nobody had the over-all picture and dared to make a decision. We need regional authorities with enough insight, power, and responsibility to act effectively for the government in such cases. These agencies must be able to resist pressure, since there is a



temptation for manufacturers to strangle competition or to substitute inferior products by an improper wording or interpretation of specifications. Authorities like our Selective Service Boards, composed of regional experts and reviewing grievances at regular intervals, might be the answer.

Cases were cited where mistaken ideas of specification writers or inspectors compelled industry to produce inferior products, where the development work of years was forced in the wrong direction and where scarce material was squandered while alternatives in abundant supply were rejected. Such abuses breed contempt and a tendency to circumvent the law. We must not fool ourselves: specifications are just as unenforceable as prohibition, if the manufacturer does not want to co-operate.

There is no sense in diluting the issue with more evidence. An inquiry of this kind highlights the faults of a system at the expense of its achievements and must be lopsided. But obviously, here exists a situation that can and should be improved. The Conference on Electrical Insulation of the National Research Council went on record that it offers its resources to the Department of Defense for advice, consultation, and technical assistance in its field of competence. We may be sure that everyone in other fields of industry will volunteer his services if the inquiry is continued in a free, academic atmosphere, seeking not for scapegoats but for solutions.

There is not much time to be lost. Already we find ourselves once more confronted with the situation that dozens of government agencies, without knowing of each other or of the supply conditions, specify the use of scarce materials for mass production when ordinary materials would do equally well. Do we need to make all the mistakes of World War II again?

Public Relations and the Technologist

A Significant Problem Confronting Engineers and Scientists Is That of Translating the Results of Their Work into Benefits Which the Public Understands

By ARTHUR M. YORK

TAKE 25 technologists from 25 different countries and seat them around a table. They will be able to discuss each other's work all day and far into the night, and probably will. They have systematically devised their own universal language, because they are firmly convinced that exchange of information is a prime function of progress. Now take any one of the 25 out of the room and confront him with the people who live on his own street. The chances are good that he will be utterly incapable of making any one of his neighbors understand specifically what he, a technologist, does and why. Worse still, he will not realize how very important it is, both to him personally and to the progress of technology, to make them understand.

The technologist stands today where most businessmen stood 20 years ago, and where some still stand today. The public did not figure in the businessman's scheme of things. He saw his job simply: to make quality products and price them competitively. People were important to him as customers only, not as employees or as citizens. To him, public relations had one main function — publicity, popularly known as a free "plug" for his products.

The average scientist or engineer today sees his job as a private arrangement between himself and an institution or a corporation. He builds a bridge, solves a chemical problem, designs a motor, works out a new step in atomic theory, or whatever his employer orders. He knows how the public will benefit, directly or indirectly. He knows how important his work is to the public. But he doesn't see how important the public is to him.

Most large corporations, and many small ones, have found out how important the public is to them. They realize that lack of public good will can literally bankrupt them. It is this new enlightenment that has caused such a rapid development in public-relations practice in the past two decades, and particularly since World War II.

What is public relations? There are nearly as many definitions as there are people working in the field. A good short one is: public relations is everything a person or group does or says to earn or lose public good will. Note the dual nature — "does" and "says." In other words, good public relations is largely a matter of living right and then talking about it. Neither part alone is enough. Public relations is not something you have or do not have. Everyone has public relations whether he wants it or not. The only question is whether his relations with the public are good or bad.

Now let us see why the technologist needs to think about whether his public relations are good or bad. Why does he need better public relations? The answer can be very tersely stated. It is simply that the very future of technology depends upon better public relations.

Consider the technologist affiliated with an institution. He does not have to be told that his traditional source of funds is rapidly drying up. Gifts from large estates are becoming smaller and much less frequent, now that burdensome taxes are making it impossible to amass a fortune. Meanwhile, costs of research are mounting, along with the costs of everything else, and more research than ever before is required to keep our highly integrated society advancing. It is no wonder that many a technical school or research foundation is wondering where its next spectrograph is coming from.

Unless technical institutions wish to accept ever larger grants from government, along with the government controls that will accompany such grants, there is only one answer. Appeals must be made to the public. But these appeals must be more than the usual fund drives. The technologist must go deeper. He must make people everywhere understand the basic things which technology is doing for the individual.

In an indirect way, the same is true of technologists associated with business enterprises. To be sure, their funds are assigned by the companies who employ them. A common supposition is that financial backing of industrial research depends on the vision of business management, and that all the technologists need to do is to convince their superiors of the worth of research and development. But more than ever before, management is realizing and admitting that most business decisions are the direct reflection of customer desires. So again, the technologist must take his story to the public. He must make people understand what technology is doing for the individual and why. This is particularly true if the technologist expects to make good on his plea that industry needs to give more attention to basic research instead of placing nearly all emphasis on applied science and product development.

In any case, the technologist needs good public relations to protect and foster his own position in our changing society. In part, this requirement can be fulfilled when the average person comes to appreciate technology as something more than a means for pro-

ducing new gadgets. But public appreciation of technology is more than a need of the technologist. It is also his duty to make the public aware of its stake in technology, aware of the financial hazards it faces, the dangers of government intervention, the need for more rapid translation of scientific discoveries into new products and services, and even new ways of life. It is not enough for the technologist to solve technical problems. He must also help foster the translation of problem solution into actual consumer goods and benefits.

The technologist who will not accept any responsibility for the practical use of science is like the King of the Grasshoppers. As the fable goes, the King of the Grasshoppers met the King of the Cockroaches. Said King Roach:

"We roaches envy you hoppers. You have such a carefree, happy life. You jump about and sing in the fresh air and sunshine all day. While we roaches must spend our lives crawling about in dark musty corners."

"Well now, old boy," replied King Hopper, "If you feel that way about it, why don't you just change all the cockroaches into grasshoppers?"

"That's a splendid idea," said King Roach. "But tell me, just how shall I go about it?"

King Hopper drew himself up to full height. He answered: "I just lay down the policy. It's up to you to work out the details."

So far, this article, too, has been limited to laying down policy, but it is now appropriate to consider how the technologist can translate his need and duty for public relations into specific practice. As noted earlier, the businessman has seen public relations as a two-part problem: (1) live right; then (2) tell people about it himself.

Fortunately, the technologist's public-relations task is greatly simplified. The first part of his two-part problem is already solved. For the most part he has

for many years conducted his affairs in such a manner as to merit public sympathy and support.

To live right, the businessman must make sure that he is conducting his affairs strictly in the public interest. He must ask himself whether he pays fair wages, provides good working conditions, and contributes to the future welfare and security of his employees. He must be sure that his company is a good corporate citizen: pays its taxes ungrudgingly, does its best to eliminate plant odors and noise, contributes to worthy charities, and takes part in community affairs. He must resist all temptations to hamper free competition, to support unfair tariffs, and to permit other unethical practices.

The technologist faces none of these problems and very few comparable ones. Furthermore, the technologist has never been branded with a stigma. The businessman can be called a "bloated capitalist" or a "profiteer." Some lawyers have been tagged "shysters" and a few doctors have been termed "quacks." Actors can be "hams." But scientists and engineers are seldom known as anything but scientists and engineers — certainly nothing more adverse than "slip-stick pushers."

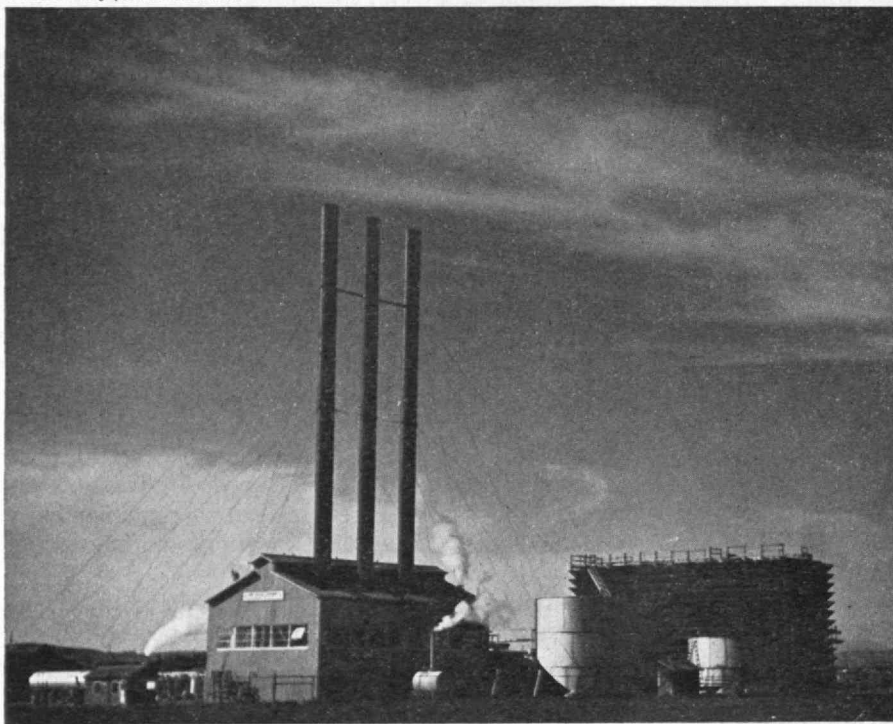
The technologist has lived a clean professional life. In fact, justly proud of his contributions to human welfare, he has been too often content to sit back and let his good actions speak for themselves. This attitude is supposed to be a part of good professional manners. Unfortunately, it is not prompted entirely by modesty; both apathy and naïveté are also involved.

Too many inventors of better mousetraps have waited in vain for the world to beat a path to their doors. Such paths are never beaten until the public is first made aware of the new things they can have, what they are good for, and how they can get them. Nobody in this world can expect public recognition and support unless he is prepared to carry his story to the public. As in Shakespeare's *Julius Caesar*, "The evil that men do lives after them, the good is oft interred with their bones." Good deeds do not often speak for themselves. Anyone who hangs his hat on that old copybook hook is no realist.

Before anyone can communicate effectively with the public, he must learn to wear the appropriate attitude, namely, he must learn to understand people as human beings and to be understood by people as a human being. Mutual understanding between the technical man and the average man is at the heart of the technologists' public relations problem. Certainly most of the intercommunication between these two groups should be directed toward or related to this problem.

The scientific mind seems foreign to the general public. The man in the street does not recognize science as organized common sense, based upon and

Werner Stoy from *Black Star*



tested by experience. The average man finds doctors' degrees, slide rules, and calculus very impressive and awe inspiring, but not the least heartwarming. He is pretty well convinced that he has little in common with these learned people who seem to be motivated only by cool logic, who appear to place facts before faith, and who shun political gossip for technical papers. It will take a long time — and a lot of effort — to convince John Q. Public that scientists and engineers are as human as he is. But it can be done, and it must be done, to provide a healthy future for technology.

Specifically, there are ways for the technologist to achieve good public relations through individual effort. There are also public-relations techniques that can be applied through group action; through local and national technical societies and university clubs, to say nothing of direct contacts through universities, research institutions, and industrial corporations.

First, let us see what the individual scientist or engineer can do by his own effort. He can associate more with people in his own community. He can take an active part in social and political activities, church groups, parent-teacher associations, fraternal orders, charity drives, and scouting activities. Joining these groups provides good public relations because it brings the technologist into closer contact with the general public and fosters mutual understanding and appreciation. Also, when people get together they usually communicate. Information spread in this manner is the most valuable and effective kind. People usually find that information which comes directly from the source is more credible than that which comes to them indirectly by way of the press and radio.

The individual technologist can accept speaking engagements on subjects on which he is an authority. When he talks in public about his own work, he should remember to tell not only what his work is, but also what it means to his neighbors and to people everywhere, in terms of their own material welfare. Yes, this can be done without seeming to be boastful.

The man with the technically trained mind can also be a valuable participant in community discussions. His calm logic and analytical sense will be a valuable counterpart of the pure emotionalism often displayed. Such participation in community discussions will help to show people how the technical man's thought processes work, and why they produce results. And they will help to show the technologist the important part that emotionalism plays in everyday living.

Now consider the local sections of our technical societies. These groups can easily serve a much wider purpose than the broadening of the members' technical knowledge. They have a great opportunity to organize or support local science clubs for youth; popular science lectures for both young people and adults; booklets, kits, displays, and other helps for grade and high-school science teachers; science and industrial fairs; science and engineering lecture bureaus.

All of these projects provide opportunities for the technologist to get close to the public and convey the simple, complete message of the true nature of the scientist and the true meaning of technology to the average individual. Local chapters of alumni clubs may also participate in most of the projects mentioned

above. The same is true of faculty clubs in science and engineering schools.

When we come to the national societies, the public relations job takes on a somewhat different complexion. It is not possible for these organizations to deal directly with the public in small community groups, where the greatest good can be done. But there are other projects which can be carried out only on a nationwide scale and which require the larger budgets available to the larger societies. The public-relations work of the national organizations will be mostly through the printed word — booklets, magazine articles, and press releases. Radio and television can also be very useful.

For one thing, the societies can print and distribute their own publications that explain such developments as atomic energy, jet propulsion, solar heating, modern architecture, new uses of plastics, the coming trend in automobile engineering, the potentials of silicon chemistry, the inside story of synthetic rubber, and so on. Such publications must be more than simplified technical treatises if they are to serve as good public-relations pieces. First of all, they must be written in the language and in terms of the interests of the man on the village street corner. Of course they must deal in facts; but in addition, the significance or meaning of those facts, now and in the future, must be interpreted in terms of man's material and emotional welfare.

The national society can also promote a better appreciation of technology through the writings of established authors. There is a growing number of sound writers of science popularizations, both in the book and in the periodical fields. Almost any of these would have a field day, and turn out a valuable piece of work, if he were offered the full help of a panel of experts.

The national society can also supply literature, programs, and suggestions for the local sections to use in carrying out the community projects touched upon above. Most of the large societies are already issuing press releases. However, this job can usually be done much more effectively, particularly if the author of each technical paper fully realizes his responsibilities, not only to his technical public but also to his whole public.

There can be little doubt that any technical man worth his salary knows full well the possible or probable ways in which society will benefit from his work. For it is mainly this knowledge, in the back of his mind that drives him on, gives him pride in his work. Since he knows how the public can benefit, it is up to him to express this benefit in terms simple enough for the publicity writer and the press to report it to the public. It would be a good idea for each technical society to refuse to accept a paper for presentation or publication unless the author could tell in a succinct, readable, comprehensive preface the true value of his work to the public. Such a prerequisite might overcome the two main mental roadblocks that keep the average scientist or engineer from communicating with the public about his work: One of these blocks is the fear that his colleagues will jeer that he is a lover of publicity and a party to sensationalism; the other is plain professional snobbishness.

(Continued on page 270)

THE INSTITUTE GAZETTE

PREPARED IN COLLABORATION WITH THE TECHNOLOGY NEWS SERVICE

Development Fund Successful

WITH a total of \$20,100,000 subscribed, the successful attainment of its \$20,000,000 goal in the Institute's Development Program was announced by Marshall B. Dalton, '15, general chairman of the Committee on Financing Development, at the midwinter meeting of the Alumni Association at Walker Memorial on February 1.

In addition to the \$20,100,000 contributed and pledged during the initial phase of the Institute's long-range Development Program, the total of gifts and pledges during the year was recently increased by the \$5,250,000 grant from the Alfred P. Sloan Foundation for the Institute's new School of Industrial Management, bringing the grand total to \$25,350,000. Mr. Dalton told the Alumni:

It is with the greatest satisfaction that we are able to report that the M.I.T. Development Fund, which began in 1949 has exceeded the original goal by \$100,000. Although the total amount contributed and pledged has exceeded the goal set, a part of the total contributed was designated for purposes not contemplated in the campaign. As a result, two of the original objectives of the program — a building for nuclear science and electronics and a new gymnasium — have not yet been provided for, although we are confident that funds for these two important goals will ultimately be forthcoming.

In thanking Alumni for their support in bringing to a successful conclusion one of the largest fund-raising efforts ever undertaken by an educational institution, James R. Killian, Jr., '26, President of M.I.T., said that the program "has been proved to be more important and timely than we knew when we planned it. Dr. Killian pointed out that this great effort in support of the Institute comes to a conclusion just at the time when M.I.T. must accept large responsibilities in behalf of national defense, and when the resources and facilities made possible by the Development Program will yield immediate dividends. He added:

I think it is fair to say that this Development Program has been of direct significance to the security of our country, as well as being an important factor in the long-range future of the Institute.

The completion of this particular intensive campaign does not mean that the Institute's financial problems are solved or ameliorated. The price of survival of the private institution must be sustained and aggressive solicitation of new support. M.I.T. is no exception, and we must, therefore, plan on an unremitting effort to secure support from private sources. We intend to do this. Plans are now being completed for a permanent Development Office and program which can insure this long-term effort. I believe that the Institute should plan on obtaining at least another \$10,000,000 in capital funds within the next five years, and that it is not unrealistic for us to strive to double this amount in addition to the \$20,000,000 we

have already secured. The objective is not to grow bigger, but rather to grow stronger and more effective.

One of our major efforts at the Institute in the months ahead, emergency conditions permitting, will be to refine and further develop our undergraduate program. Even in the face of present emergency conditions we feel it important to the nation that we not give up our long-range plans or weaken our present educational activities.

Dr. Killian said that in order to maintain quality of technical education in the Institute, the M.I.T. Administration had concluded that it should not make any plans for accelerating its program by requiring students to go to school the year round. Experience in World War II, he said, clearly demonstrated that this kind of schedule definitely reduced standards of education, and that such a program of year-round education should be required only as a last resort.

More Ore Reserves

At the 279th meeting of the Alumni Council on January 22, Council members had opportunity to hear President Killian speak on recent developments at the Institute, to see John W. M. Bunker, Dean of the Graduate School, in the role of expositor on the operation of that School, and to feel the effects of increased ore reserves, as Professor Antoine M. Gaudin of the Department of Metallurgy, outlined methods for increasing the yield from our present reserves of raw materials. The meeting was called to order in the Campus Room of the Graduate House by John A. Lunn, '17, President of the Alumni Association, who introduced Robert H. Macmillan from Cambridge University, England, a visiting professor in the Department of Mechanical Engineering.

Speaking of business, Donald P. Severance, '38, Secretary of the Alumni Association, reported that the Executive Committee had approved changes in class affiliations for five men who had graduated during the war years. Also reported was the fact that eight members of the Institute's Faculty and staff had visited a dozen different alumni clubs in Canada, Mexico, and the United States between November 16, 1950, and January 18, 1951.

Walter H. Gale, '29, Director of the Summer Session, outlined plans for a new type of Institute-Alumni meeting to be held in Chicago on January 27. Further details on the Midwest Alumni Regional Conference appear in the photographs and caption on page 256.

As chairman of Alumni Day, 1951, Allen Latham, Jr., '30, reported that present plans for the annual June reunion, which is to be held on Monday, June 11, call for departmental forums and reunions to take the place of the symposiums of former years. In an all-M.I.T. program, President Killian will be host at a reception at the President's House in the afternoon, and the principal speaker at the Stein-on-the-Table Ban-

Air Force Awards Honor M.I.T.

The United States Air Force honored Professor Charles S. Draper, '26, Deputy Head of the Department of Aeronautical Engineering (left), on January 23, 1951, when it awarded to him the Exceptional Service Award. At the same time, Thomas K. Finletter, Secretary of the Air Force (center), presented a Scroll of Appreciation to M.I.T. in recognition of the Institute's "outstanding scientific contributions to the technical advancement of air power." President Killian (right), accepted the scroll on behalf of the Institute in presentation ceremonies in Huntington Hall.

The highest civilian decoration of the Air Force was awarded to Professor Draper for his "unstinted efforts and exceptional devotion to the solution of Air Force technological problems related fundamentally to the dynamics of aircraft and missiles in flight" and for "his broad knowledge of dimensional complexities, and his ability to marshal the unique human and material resources available to the Instrumentation Laboratory." Professor Draper accepted the honor "with the conviction that this award should be shared by many others."

In addition to Secretary Finletter, those who attended the presentation ceremonies included: Major General Donald L. Putt, Director of Research and Development for the United States Air Force; Preston R. Bassett, President of Sperry Gyroscope Company; and representatives of the Institute's Faculty.



M.I.T. Photo

quet at the Copley Plaza Hotel in Boston in the evening.

Officers of the Alumni Association for the coming year were nominated in a report from H. B. Richmond, '14, chairman of the National Nominating Committee. The recommendations of this committee, as well as photographs and biographical sketches of nominees, appear on page 254.

Faculty approval to change the Institute's grading system, from the traditional notation used at M.I.T. to that now used by six out of seven of every college and university in the United States, was reported by President Killian. The change will go into effect at the discretion of the registrar. President Killian also announced the establishment of the Institute's two new schools: the School of Humanities and Social Studies, and the School of Industrial Management.

President Killian also discussed the effects which Selective Service is likely to have on college enrollment. As recorded in the January issue of *The Review* (page 137) there is already a shortage of college students in engineering and science to meet the usual peacetime civilian needs, let alone the increased demands of the present emergency. For this reason, because of the highly technical problems of modern production and national defense, and because of the present lack of a definite policy regarding the drafting of young men for military service, the Administration feels that the Institute and its students can best serve the nation's needs by continuing to operate as a first-class educational plant. It is the Administration's considered judgment that students will serve our country best by continuing their studies until national policy and the needs of the country dictate some other course. Unlike the situation in some colleges, especially in the Midwest, there has not been any exodus of students from their studies, nor is this considered likely to occur at M.I.T.

President Lunn then called upon Dean Bunker to discuss the present operation of the Institute's Graduate School. Of the 1,600 graduate students currently registered, Dean Bunker reported that many are doing part-time teaching so that this number is equivalent to 1,200 full-time graduate students. Many receive scholarships and industrial fellowships and carry on teaching and research activities along with their studies so that they make a real contribution to M.I.T. activities. Under present uncertain conditions, it is not possible to forecast how many graduate students would be permitted to complete their studies free from the interruptions of Selective Service or calls for reserves, especially since a substantial percentage hold reserve officers' commissions. Again it was felt that the nation's interests would best be served by permitting this group to complete their academic work.

In speaking on "Making Ore Reserves," Professor Gaudin made it clear that economics, as well as technological progress determined what might be considered as ore. As the higher grades of ores are being depleted, improved techniques of extraction are constantly being developed, and worth-while quantities of metals are obtained from the lower grades of ore. In this sense ore reserves are "made" in contradistinction to being "found." Large quantities of minerals are still available in the low-grade ores and can be utilized as soon as there is sufficient economic justification. But new and inexpensive methods of extraction are required. Among the methods which Professor Gaudin described for profitably working ores previously considered marginal, were the use of ion-exchange resins, new processes of pyrometallurgy in which solvents other than water are employed, "mining the sea" for such minerals as magnesium, chlorine, bromine, and iodine, and the use of radioactivity techniques for sorting ores which are either naturally radioactive, or in which radioactivity can be readily induced.

Midwinter Alumni Meeting

UNDAUNTED by snow, slush, sleet, and rain approximately 1,000 Alumni in Metropolitan Boston gathered at Walker Memorial on the evening of February 1, to attend the midwinter alumni meeting. John A. Lunn, '17, President of the Association, presided at the meeting which was devoted to reports on current events in the administration of Technology affairs, and an outline of certain phases of research which are currently in progress at the Institute.

During the first portion of the meeting, Alumni had opportunity to hear encouraging words from Karl T. Compton, chairman of the M.I.T. Corporation, to learn from Marshall B. Dalton, '15, general chairman of the Committee on Financing Development, that the original goal of \$20,000,000 had been fully subscribed, as reported elsewhere, and to listen to President Killian's report on current events on the Charles.

Dr. Killian began by expressing appreciation of the praiseworthy work of the many thousands of loyal Alumni who have taken part in the successful Development Program. He reported an anticipated decrease in enrollment of the student body next fall but stated that lack of a definite national policy on Selective Service made it impossible to estimate at all accurately how many students would be permitted to continue their studies. Increasing amounts of research, which M.I.T. is being asked to undertake, are expected to occupy Faculty members whose loads may be lightened by reduced enrollment. President Killian also reported that the Institute, along with six other colleges (the majority in New England) went on record as opposed to adoption, under present conditions, of the accelerated program of three semesters a year, which had been in effect during World War II. The

accelerated teaching program had been found inferior to the usual two-semester program.

George R. Harrison, Dean of Science, served as master of ceremonies during the second half of the meeting. He introduced Richard H. Bolt, Associate Professor of Physics and Director of the Acoustics Laboratory, who demonstrated some practical applications of supersonic sound; John G. Trump, '33, Associate Professor of Electrical Engineering and Director of the High Voltage Research Laboratory, who spoke on the role of the Van de Graaff generator in modern medicine; and Alexander Bavelas, '48, Associate Professor of Psychology, who outlined recent experiments intended to determine the relative effectiveness of different types of communication networks in enabling persons to perform co-operative tasks. The experiments conducted by Dr. Bavelas showed that the network which permitted a co-operative problem to be solved most rapidly did not necessarily yield the most accurate results, nor were the participants as satisfied with the results of their work as in the case of a "less efficient" type of communication network.

Nominees

TECHNOLOGY Alumni will go to the polls this spring to elect new officers of the Alumni Association of M.I.T. into whose hands the administration of the Association will pass for one year beginning July 1. In addition, they will name three prominent Alumni for election to serve a five-year term as members of the M.I.T. Corporation.

Alfred T. Glassett, '20, I, President, Treasurer, and Director of the W. J. Barney Corporation in New York

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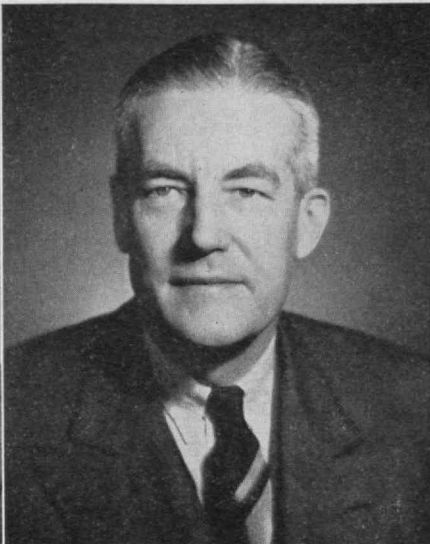
... of the Alumni Association, Alfred T. Glassett, '20, I, has been nominated to serve for one year beginning July 1. Mr. Glassett is president, treasurer, and director of the W. J. Barney Corporation, New York firm of industrial constructors. A past vice-president of the M.I.T. Alumni Association, Mr. Glassett is chairman of the Alumni Fund Board, honorary secretary, and a member of the Visiting Committee on the Department of Civil Engineering. He was also president of the M.I.T. Club of New York from 1935 to 1940,

and has served as a member of the National Nominating Committee of the Alumni Association.

Professionally, Mr. Glassett is a member of the American Society of Civil Engineers, and past director of the Metropolitan (New York) section. He is also a member of the National Society of Professional Engineers, the National Fire Protection Association, and the executive committee of the construction division of the National Safety Council; and has served as chairman of the New York Engineers' Committee on Student Guidance.



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Ferdinand Vogel



FOR FIVE YEARS WITH THE M.I.T. CORPORATION

... as representatives of the Alumni Association, the National Nominating Committee has named (left to right): Howard H. McClintic, Jr., '19, I, President and Director, Ferguson and Edmondson Company, Pittsburgh; David A. Shepard, '26, X and X-A, Executive Assistant to the President, Standard Oil Company (N.J.) in New York; John A. Lunn, '17, II, Vice-president, the Kendall Company, Boston.

City, has been nominated for the presidency of the Alumni Association.

The National Nominating Committee — whose members are John L. Porter, '00, Donald B. Webster, '16, Winfield I. McNeill, '17, Walter R. C. Russert, '18, Minot R. Edwards, '22, John S. Williams, Jr., '22, Harold C. Pearson, '23, Holland H. Houston, '24, Thomas G. Harvey, '28, and H. B. Richmond, '14, chairman — has nominated Hugh S. Ferguson, '23, XV, Executive Vice-president of the Dewey and Almy Chemical Company of Cambridge, to serve as vice-president for two years. Royal Barry Wills, '18, IV, architect, and George W. McCreery, '19, I, have been named for posts on the Executive Committee for two-year terms. Mr. Wills, a Boston architect, has served his class as agent and is a member of the Alumni Council. Mr. McCreery is owner of the George W. McCreery Company, Boston firm of building constructors, and, in Technology affairs, has been a member of the Alumni Council, agent for his class, and group chairman of the M.I.T. Development Program.

Named for alumni term membership on the M.I.T. Corporation, each to serve for a period of five years, are: John A. Lunn, '17, II, Vice-president, the Kendall Company of Boston; Howard H. McClintic, Jr., '19, I, President and Director, Ferguson and Edmondson Company, Pittsburgh, Pa.; and David A. Shepard, '26, X and X-A, Executive Assistant to the President, Standard Oil Company of New Jersey.

New representatives on the National Nominating Committee to be elected this year (one from each district) are: *District 3* — Providence, R.I., — George E. Colby, '32, II; Eugene J. Brady, Jr., '42, II; *District 6* — Charleston, W.Va., — Charles F. Hobson, '11, X; Philadelphia, Pa., — George P. Edmonds, '26, XV; Washington, D.C., — George D. Mock, '28, IX-B; *District 7* — Detroit, Mich., — Minot S. Dennett, '11, II; Milwaukee, Wis., — Harold E. Koch, '22, VI-A; Louisville, Ky., — Melvin Sack, '28, II.

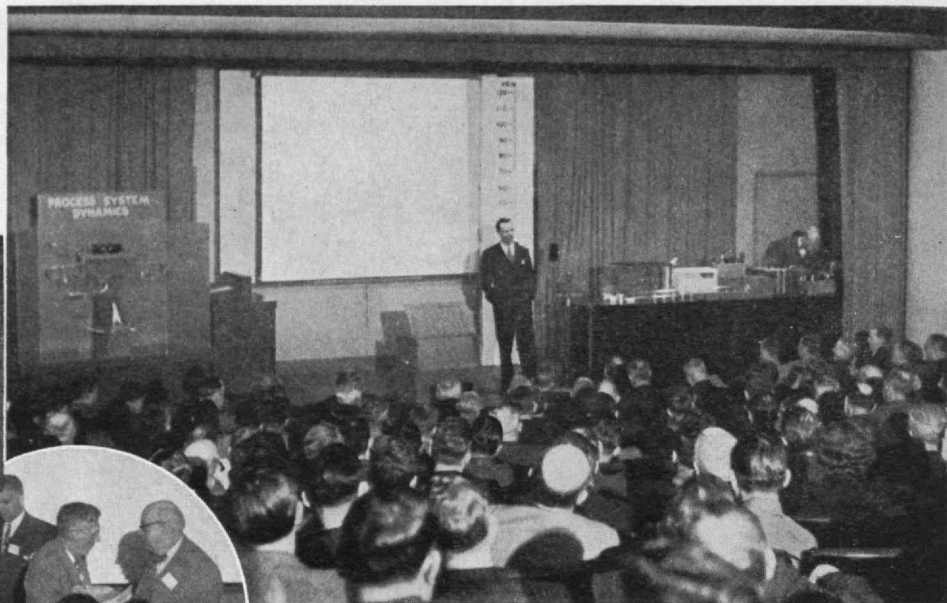
M.I.T. and N.A.C.A.

THE abundant share which the Institute is providing in the development of aviation in the United States can be gauged by the fact that 14 members of its Faculty have been appointed to serve on technical committees of the National Advisory Committee for Aeronautics. While many of these appointees are members of the Department of Aeronautical Engineering, as might be anticipated, substantial contributions are being made by other departments and laboratories not primarily concerned with aviation.

According to Professor Jerome C. Hunsaker, '12, Head of the Department of Aeronautical Engineering and chairman of the National Advisory Committee for Aeronautics, the 1951 appointments are especially important inasmuch as they call for added service to the country by civilians in time of national emergency.

Members of the Institute family thus serving the aviation interests include: Raymond L. Bisplinghoff, Associate Professor of Aeronautical Engineering; Professor Gordon S. Brown, '31, of the Department of Electrical Engineering; John T. Burwell, Jr., '34, Associate Professor of Mechanical Engineering; Walter H. Gale, '29, Associate Professor of Aeronautical Engineering; Nicholas J. Grant, 2-44, Associate Professor of Process Metallurgy; Professor William R. Hawthorne, '39, of the Department of Mechanical Engineering; Professor Henry G. Houghton, '27, Head of the Department of Meteorology; Zdenek Kopal, Associate Professor of Computational Analysis; Chia-Chiao Lin, Associate Professor of Mathematics; Professor John R. Markham, '18, of the Department of Aeronautical Engineering; René H. Miller, Associate Professor of Aeronautical Engineering; Ascher H. Shapiro, '38, Associate Professor of Mechanical Engineering; Professor Edward S. Taylor, '24, of the Department of Aeronautical Engineering; Glenn C. Williams, '42, Associate Professor of Chemical Engineering.

Vories Fisher



With "New Frontiers in Science" as the topic, 300 attended the first Midwest Alumni Regional Conference, held on January 27 at the Museum of Science and Industry under auspices of The M.I.T. Club of Chicago.

Shown here are two photographs during the session of the first Midwest Regional Conference in which (above) Richard H. Bolt, Director of the M.I.T. Acoustics Laboratory, demonstrated effects of sound and (left) Donald P. Campbell, '43, Assistant Professor of Electrical Engineering, outlined the role of servomechanisms in process control.

The program of the morning and afternoon sessions, as arranged by Robert C. Gunness, '34, manager of research for the Standard Oil Company of Indiana, and Walter H. Gale, '29, Director of the M.I.T. Summer Session, respectively, had five speakers: Professor George R. Harrison, Dean of Science; Professor Jerrold R. Zacharias of the Department of Physics; Professor Campbell; Professor Bolt; and D. M. MacMaster, Acting Director of Chicago's Museum of Science and Industry.

Robert E. Wilson, '16, life member of the M.I.T. Corporation and chairman of the Board of Standard Oil Company of Indiana, who first suggested the idea of holding such a conference, presided at the dinner at which Karl T. Compton, chairman of the M.I.T. Corporation, was guest of honor. Other speakers were: Major Lenox R. Lohr, Director of the Museum; Stanley M. Humphrey, '28, President of The M.I.T. Club of Chicago and partner in Booz, Allen and Hamilton; John A. Lunn, '17, President of the Alumni Association of M.I.T. and Vice-President of the Kendall Company; and H. E. Lobdell, '17, Executive Vice-President of the Alumni Association of M.I.T.

In addition to introducing the dinner speakers, Dr. Wilson called attention to the presence of two other members of the M.I.T. Corporation: James M. Barker, '07, chairman of the Board of Allstate Insurance Company; and Pierre F. Lavedan, '20, President of the Liquid Carbonic Corporation. Mr. Lavedan was one of five past presidents of The M.I.T. Club of Chicago who were present, the others being Edward Pennell Brooks, '17, Vice-president of Sears, Roebuck and Company; Sherry O'Brien, '17, of Thermal, Inc.; Edmund G. Farrand, '21, former Secretary and General Manager of United Conveyor Corporation; and John W. Barriger, 3d, '21, President of the Monon Railway.

Officers and past officers of M.I.T. Clubs other than that of Chicago who attended, included: Paul H. Buxton, '16, Edward A. Fulton, '30, and Irvin R. Mitchell, '30, from St. Louis; Emerson J. Van Patten, '24, and Arthur G. Hall, '25, from Milwaukee; Charles H. Reed, '20, from Cleveland; and Henry W. Jones, '26, and Robert E. Worden, '36, from Philadelphia.

John R. Loofbourow: 1902-1951

JOHN R. LOOFBOUROW, Professor of Biophysics, and Executive Officer of the Department of Biology, died at the Massachusetts General Hospital in Boston on January 22, 1951, after a brief illness.

Professor Loofbourow was born in Cincinnati, Ohio, on November 1, 1902, and was educated at the University of Cincinnati from which he received the B.A. degree in 1923. He received the honorary degree of Sc.D. from the University of Dayton in 1936.

From 1925-1929 Professor Loofbourow served as an instructor of physics at the University of Cincinnati, and for the following six years was a research associate. From 1935 to 1936 he was professor of biophysics at the University of Dayton, and was a research professor at the Institutum Divi Thomae from 1935 to 1940, when he was appointed an associate professor at M.I.T. In 1945 he was promoted to the rank of full professor and appointed executive officer of the Department of Biology. He also served as chairman of the Faculty.

Dr. Loofbourow was executive secretary of the Radar Division of the National Defense Research Committee from 1942 to 1946. He had also served as special adviser to the Atomic Energy Commission in 1947 and 1948. Dr. Loofbourow was the recipient of the President's Certificate of Merit in 1948.

(Continued on page 258)

BUSINESS IN MOTION

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For many years Revere has been saying that the important figure for industrial buyers to watch is not the price per pound of a given material, but the cost of the finished part made from it. On that basis, it sometimes turns out that an "expensive" metal actually is cheaper than a "cheaper" one. We have seen many illustrations of this during our 150 years of experience.

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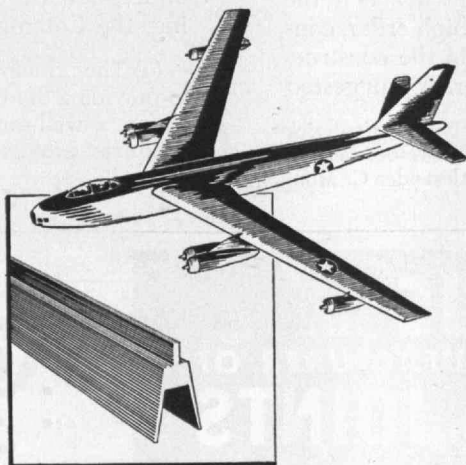
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Note the statement that "money is saved." True, the bronze costs much more per pound than the steel. But there is a great saving because the bronze is delivered in such forms that very little machining is needed. Finished parts are made more quickly, and machine tools and the skilled men to operate them are released for other essential work. Thus our country's resources are made to go further.

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Such an example of the "more expensive" material proving to be not only much more satisfactory but definitely more economical is by no means unusual in Revere's experience. Probably every supplier to industry has similar instances in his files, though perhaps not so startling. Here is the key to this case history: the plane manufacturer asked Revere to collaborate, and explained the problem in detail. No matter what you make, nor from whom you buy, you will find your suppliers eager to give you the benefit of their knowledge and experience, and it will pay you very well indeed to call on them for it.



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Fundamentals for Curriculum

THE Visiting Committee on the Department of Mechanical Engineering* under the chairmanship of Frederick S. Blackall, Jr., '22, met on December 13, 1949. The morning was devoted to a tour of some of the laboratories, and the afternoon and evening were spent in discussion.

At this meeting, members of the Committee expressed vigorous opposition to any steps which might lead to greater specialization. The first obligation of the Department, in their view, is to provide fundamental preparation in the broad field of Mechanical Engineering. Course II graduates, first and foremost, must be well-grounded engineers. With a thorough grasp of fundamentals and their application, the engineer will have no difficulty in mastering new problems of a specialized nature. The most important consideration is the quality of leadership and the capacity for inspiration on the part of principal teachers in the Department; so long as these are of a high order, considerable freedom may be exercised in the construction of the curriculum. Andrey A. Potter, '03, suggested

* Members of this Committee for 1949-1950 were: Frederick S. Blackall, Jr., '22, chairman, Andrey A. Potter, '03, Max L. Waterman, '13, Thomas H. West, 3d, '22, Alexander C. Monteith, and Joseph W. Powell.

that the option system should have a functional basis, dealing with such divisions as design, production, and so on, rather than a specialized or industrial basis, such as textiles, automotive, and the like.

Very largely as a result of the proposal by Thomas H. West, '22, the Department of Mechanical Engineering had devoted itself, in recent months, to a closer study of the fundamental principles which ought to guide the shaping of the curriculum. This study will be continued, and it is likely to lead in the future to certain major changes in curriculum which might well accomplish the objectives sought by Mr. West. The members of the Department emphasized, however, that such changes should be made slowly; that no fundamental subject should be abandoned unless an applied subject of equal educational worth can be substituted. An *ad hoc* committee consisting of Professor John A. Hrones, '34, chairman, and Professors James Holt, '19, and Joseph H. Keenan, '22, all of the Department of Mechanical Engineering, submitted a tentative report on this question in which the basic premises governing the present curriculum were presented.

As a result of a comprehensive discussion of the undergraduate curriculum in Mechanical Engineering, the Committee drew the following conclusions:

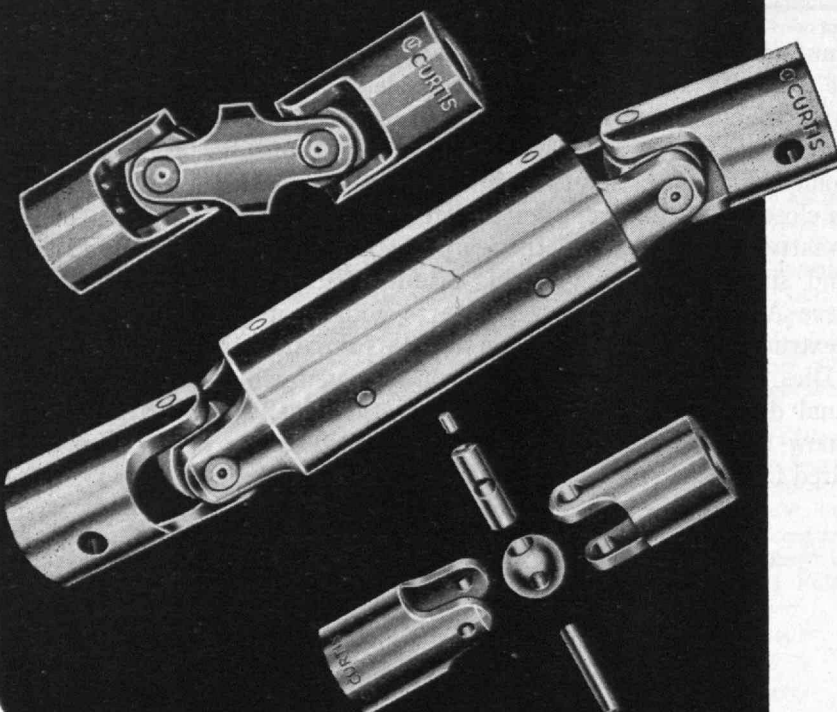
(a) The principal objectives of the curriculum should be to provide a thorough groundwork in basic scientific principles, a well-rounded program in the humanities, and adequate professional training. The latter should offer

(Continued on page 260)

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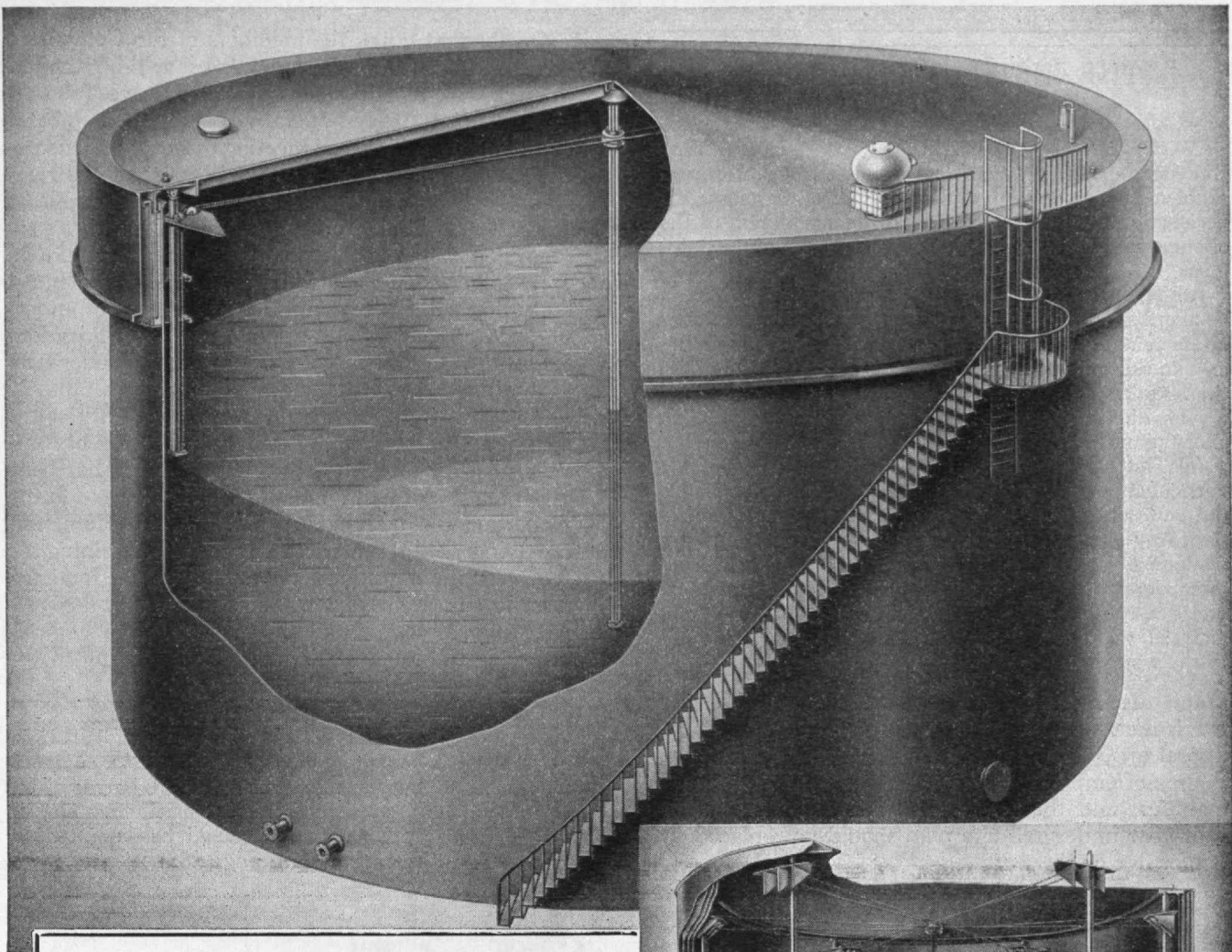
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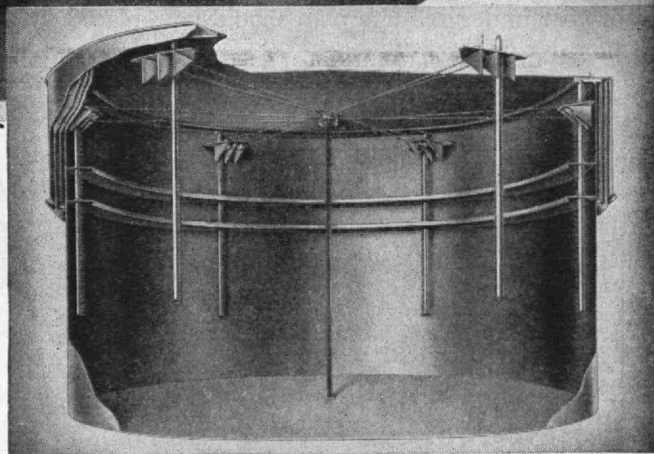
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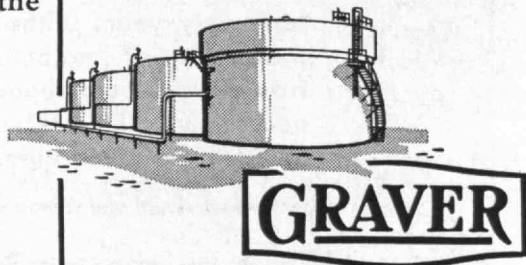
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GRAVER

THE INSTITUTE GAZETTE

(Continued from page 258)

students the opportunity to deal with relevant professional problems which develop sound methods of reasoning, experience in creative effort, and an understanding of the circumstances in which they will work as professional men;

(b) The greatest possible latitude and flexibility should be afforded to students — and especially to those of superior attainments — in the planning of their programs, in order to take full advantage of their own interests and motivation. Students should be fully informed of this policy, and a sympathetic and efficient system of student counseling is of the most vital importance;

(c) The Department should continue its study of the curriculum and attempt to delineate as clearly as possible the basic objectives and the best means for their realization. Any changes in the curriculum should take full advantage of creative work which is carried out by staff members within the Department. The Faculty should exercise a continuing effort to replace dull and irrelevant material with inspiring subjects of maximum relevance to the world in which the future engineer will live.

In a discussion dealing with a suitable engineering curriculum for students possessing a background in the liberal arts, two issues emerged: the question of the degree of emphasis which should be given to the humanities; and the question of whether the present four-year undergraduate plan should be replaced by one of five or six years.

On the first point, the members of the Committee were agreed that general education should be stressed in preference to narrow specialization. It was felt that while the Institute's co-operative plan with liberal arts colleges went far toward meeting this problem, its potentialities were limited, if only because of the relatively small proportion of students who were able or willing to devote the time and expense to such a program. Thus it was felt that a real effort should be exerted to accomplish the objectives of a balanced education within the framework of the type of undergraduate education now given at M.I.T. President Killian reviewed some of the efforts now under way at the Institute to strengthen the humanities.

With regard to the second point, a majority of the members strongly favored retaining the present four-year plan for most students. This problem has been given much study throughout the Institute and in the Department of Mechanical Engineering. Here, too, the preponderant sentiment is in favor of retaining the four-year undergraduate course as a basis for engineering education, leaving the five-, six-, and seven-year courses for special treatment and, in general, reserving the more penetrating specialization to the Graduate School.

The following conclusions were reached:

(a) The four-year program should be basic for engineering education, but the utmost use should be made of the combined plan wherever this is economically feasible;

(b) The maximum flexibility should be permitted for
(Continued on page 262)



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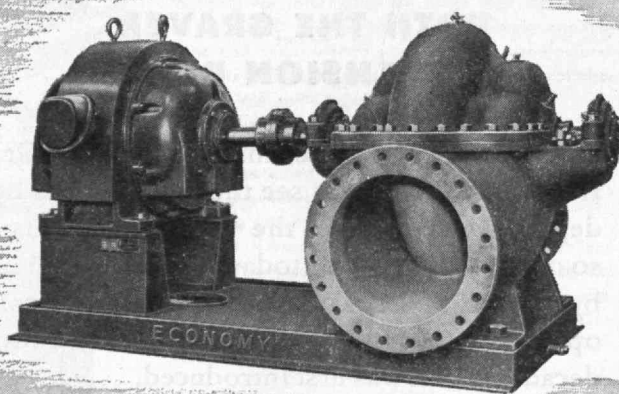
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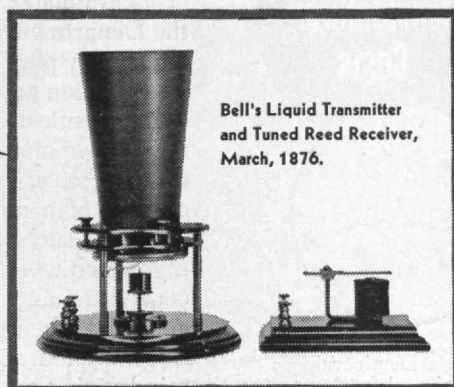
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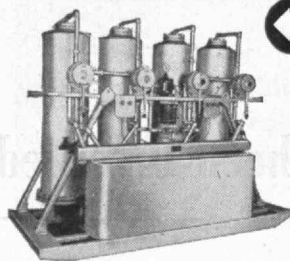
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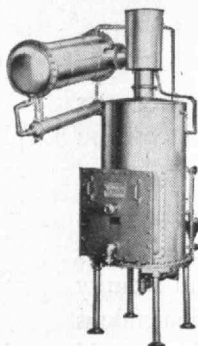
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THE INSTITUTE GAZETTE (Continued from page 260)

graduate students at the Institute to take advantage of previous training at liberal arts institutions. The significance of a wise system of student counseling is very great in this connection;

(c) Greater publicity should be given to the opportunities which the Institute affords for flexibility in the selection of courses, for engineering training for the liberal arts graduate, and for specialized engineering education at the graduate level.

The Department has given considerable attention during the year to the professional opportunities of the mechanical engineer. Mechanical Engineering differs from many other specialties at the Institute in that there is no narrowly specialized industry in which the graduates may seek employment, such as in the case of Chemical Engineering, Naval Architecture, Electrical Engineering, and so on. The specialization in Mechanical Engineering which can be taught effectively at the Institute is necessarily very limited, and it is important that a careful consideration be given to future opportunities in this respect. The Department has come to the conclusion that the field of manufacturing is one of the most promising for a large number of its graduates in the future. It is the expectation of the Department that in the coming decades, manufacturing may play a role similar to that played by power a generation ago, as the career objective of a majority of Mechanical Engineering students. Many of the major developments in the Department are focused on this objective. Of particular importance is the development of a more mature professional approach to subjects, such as metal cutting and metal forming. Much work in this direction has been done in recent years, and the proper degree of growth will be achieved when the new Metal Processing Laboratory is completed. Beyond this, the Department has in mind giving greater motivation and scope to its program of research and development in the field which, up to now, has come under the name of mechanics of materials. As the inquiry is widened to new fields, such as plastics and textile fibers, a more mature approach is required which eventually must include considerations of the physics of the solid state, as well as metallurgy. The Committee endorsed this trend.

In recent years, the Department of Mechanical Engineering has given much attention to the prob-

(Continued on page 264)

William H. Coburn, '11

William F. Dean, '17

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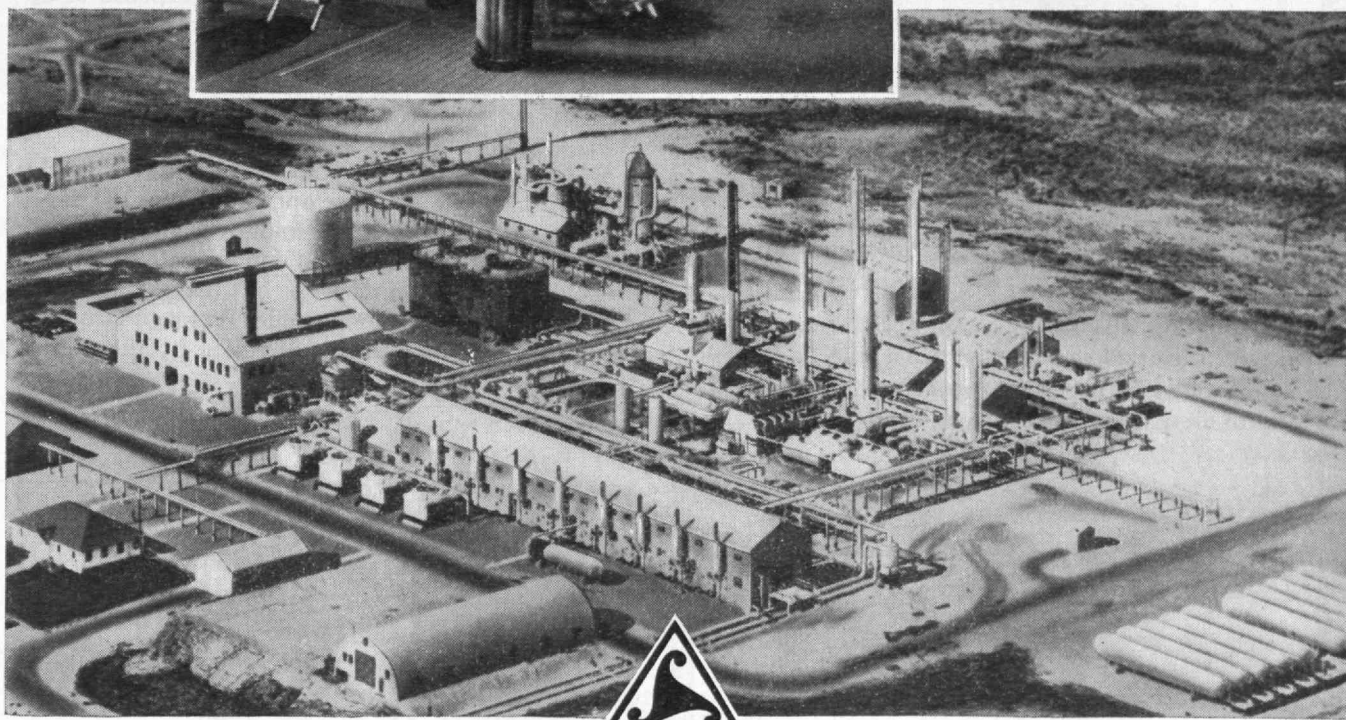
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To insure maximum use of the field, the new Elk Basin Unit Repressuring Plant at Elk Basin, Wyoming, includes provision for recovery of over 90 per cent of pure elemental sulfur from sour gas and the generation of flue gas for repressuring. This releases the sweetened natural gas for sale purposes. Operated for the Unit by Stanolind Oil and Gas Company, the plant recovers propane, butane and natural gasoline from casinghead gas. Design and construction were by Stone & Webster Engineering Corporation.

●
Above: Sulfur Recovery Unit.

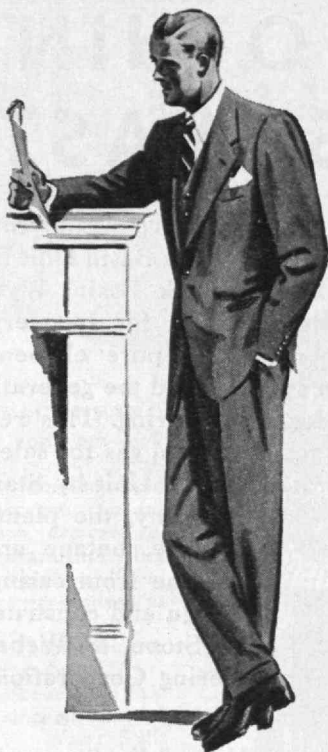
●
Center: Interior of Compressor House showing feed and inert gas compressors.

●
Below: General aerial view of plant.



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THE INSTITUTE GAZETTE

(Continued from page 262)

lem of co-operative education. The arrangement in force prior to World War II, known as Course II-A, was not entirely satisfactory, since it involved a relatively small group of exceptional students. The present arrangement, known as Course II-B, provides for six months' supervised working experience in an industrial establishment prior to the professional work of the fourth year. The Department is enthusiastic about the possibilities of this program, even though it has not been in operation long enough to justify definite conclusions. The students and the participating companies are equally enthusiastic about its possibilities. Course II-B fits ideally into the program to strengthen the activities related to manufacturing. It is also felt that the closer working relationship between the Institute and industry which would result from the co-operative program will bring about a greater diversity of employment opportunities, a factor of vital importance in the future when the general employment situation becomes more difficult. Twenty students are enrolled in the present program under the direction of William MacG. Murray, '33, Associate Professor of Mechanical Engineering, and half that number are employed in industrial establishments. When the program has been developed to its maximum potentialities, it is estimated that possibly half of the students in the Department may take it. Inasmuch as the director of the course will have to make periodic visits to the various groups, the program on any such expanded basis would entail an estimated additional expense of approximately \$2,500 a year. The Department has not yet solved the problem of where to find these additional funds. It is tentatively using its regular expense budget and will request the Administration for approximately \$1,500 next year.

One of the difficult problems of engineering education is to afford adequate opportunity for the development of resourcefulness, initiative, and ingenuity without sacrificing the need for education in basic principles. Considerable work has been done in the Division of Machine Design under Professor Hrones to encourage activities in this direction by the awarding of prizes, and so on.

(Concluded on page 266)

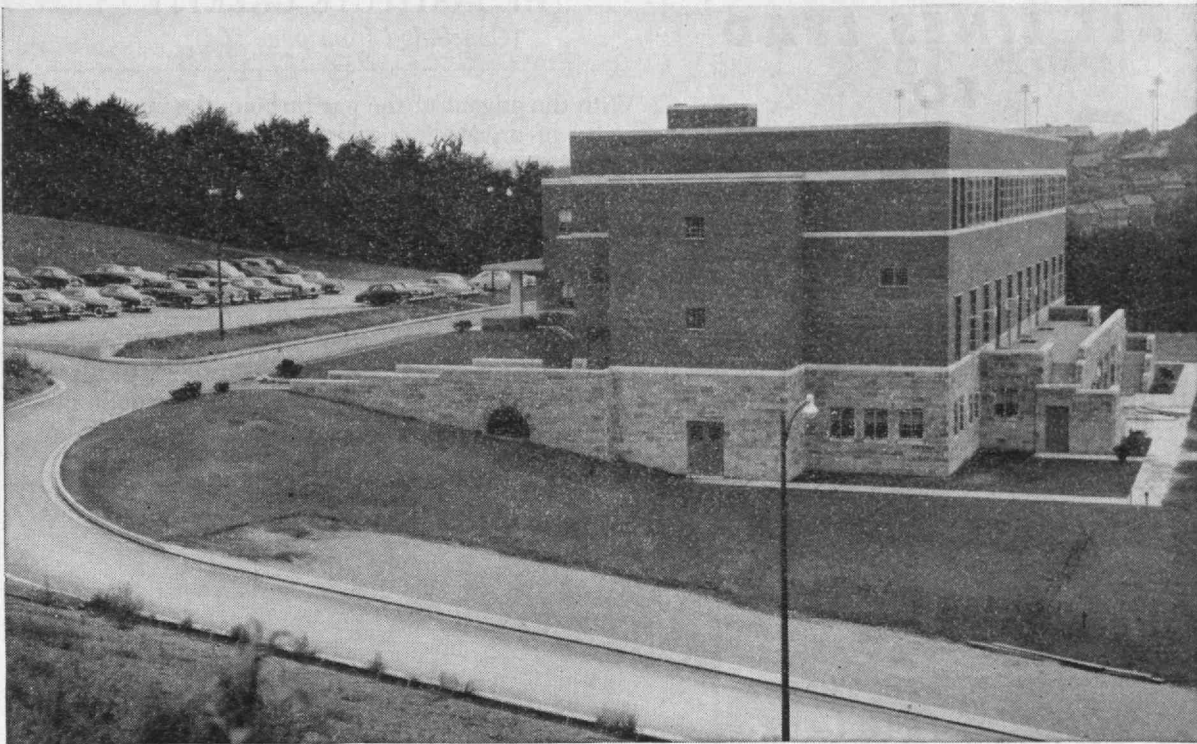


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But to speed young engineering graduates in the inevitable transition from theory to practice, Westinghouse has dedicated a new building . . . the Westinghouse Educational Center.

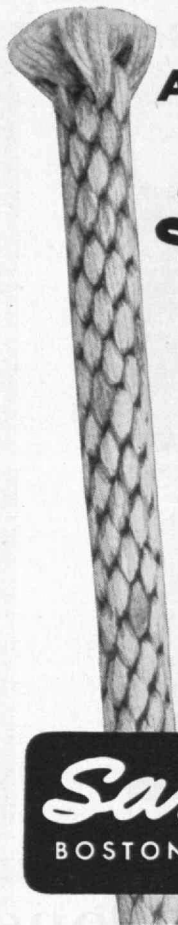
Primary purpose of this center is to offer the best facilities possible for the training and continued education of new employees . . . top students from leading engineering schools. This modern center includes such facilities as an auditorium; classrooms acoustically treated and with modern visual aid equipment; library and magazine room; formal and informal lounges; game, billiard and hobby rooms; facilities for athletic activities, and a convenient cafeteria.

This is but one way in which Westinghouse encourages scientific advancement, in addition to supporting 42 fellowships, 149 scholarships, 5 professorships, and a graduate study program through which advanced degrees may be obtained from leading universities by Westinghouse employees. Another important phase of the Westinghouse program is summer research work by selected graduate students, and an industrial experience program for faculty members of engineering schools.

In these ways, Westinghouse co-operates with colleges in a common effort to advance scientific achievement in all of its aspects. Westinghouse Electric Corporation, Pittsburgh 30, Pennsylvania.

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THE INSTITUTE GAZETTE (Concluded from page 264)

With the advent of the gas turbine, the interest on the part of private industry and government institutions in research related to the internal combustion engine has seriously diminished. The Department now finds it difficult to obtain adequate support for research in the field of internal combustion engines.

While no definite conclusions were reached, the Committee urged that some of the industries interested in fuel, other than the Ethyl Corporation, be approached for research funds. President Killian mentioned that grants-in-aid from the automobile industry as a part of the Development Program, may be a possibility.

Architect for Auditorium

EERO SAARINEN, whose work has attracted international attention, has been appointed architect for the new auditorium and chapel to be built at M.I.T.

Mr. Saarinen is the son of the famous Finnish architect, Eliel Saarinen, with whom he was associated in the design of many famous buildings, including the Berkshire Music Center at Lenox, Mass. Among other buildings, the Saarinens also designed the Kleinmans Music Hall in Buffalo, and in 1948 won first prize for design of the St. Louis Jefferson Memorial.

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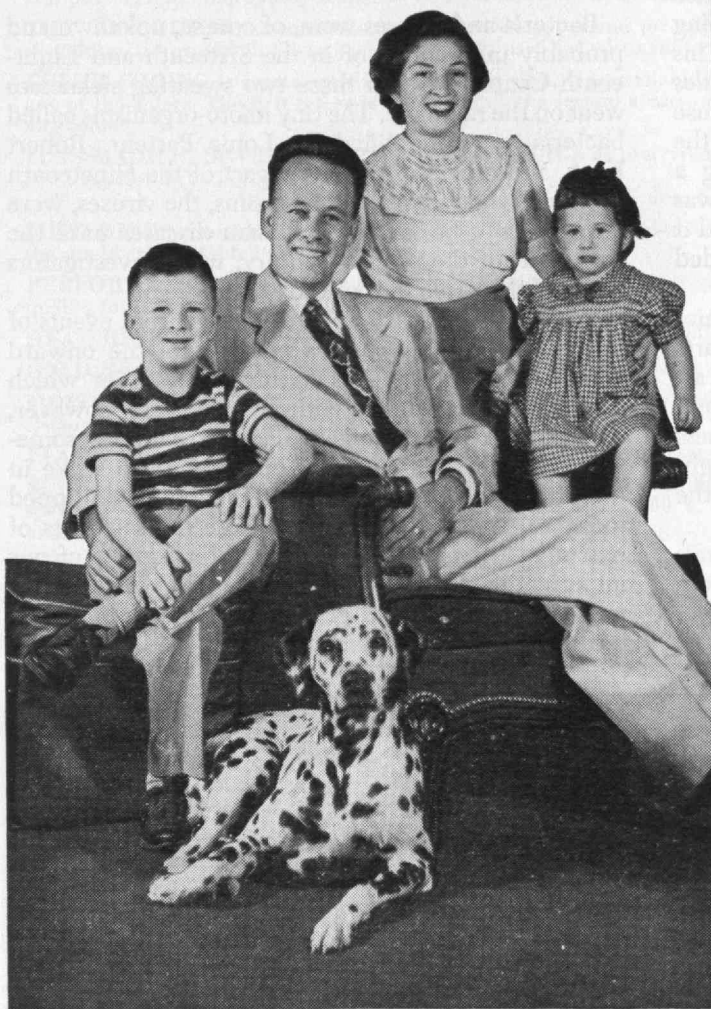


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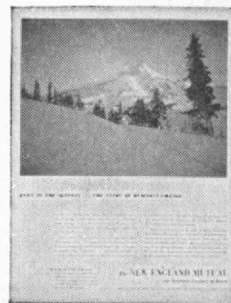
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Larry Graeber

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MYSTERY OF THE SWEATING SICKNESS

(Concluded from page 244)

same sort of thing happened in the South Sea Islands when measles, a mild disease among us, was introduced among natives who never had been previously exposed to this scourge.

About 200 years after the complete disappearance of the English sweat an ailment somewhat resembling it erupted suddenly in Normandy in France. This queer epidemic of 1718 was known as the *Suette des Picards*, or Picardy sweat, but along with the profuse perspiration and other symptoms suggestive of the English disease, this one differed by displaying a measles-like rash of the skin. This malady also was accompanied by rather severe mental disorders and it was, in general, much less fatal than the dreaded *Anglicus sudor*.

Between 1718 and 1861 more than 200 epidemics of the Picardy sweat were reported in various parts of France, but most of them were small and local affairs, seldom spreading beyond the limits of one community, and the doctors were convinced that the illness was not even contagious. Some thought that it might have been a manifestation of mass hysteria, like the dancing manias of the Middle Ages.

Like the English sweat, this malady now belongs only to the lore of medical history, although it continues to puzzle the epidemiologists or sanitary detectives. Most authorities believe that the Picardy sweat

was distinct from the English sweat and that it was caused by an entirely different virus or other germ. In some ways this sickness resembled the fulminating type of epidemic meningitis which caused considerable trouble in World War I and, for that matter, in all wars.

Learning the Unknowns

Bacteria and viruses were, of course, unknown and probably undreamed of in the Sixteenth and Eighteenth Centuries when these two sweating sicknesses went on the rampage. The tiny micro-organisms called bacteria were identified by Louis Pasteur, Robert Koch, and others in the latter part of the Nineteenth Century, while their smaller cousins, the viruses, were not shown to be factors in human diseases until the early part of the present century, when investigators realized their role in the study of medicine.

We may, if we wish, regard these morbid events of the past merely as curious episodes in the onward march of civilization, as unsolved mysteries which probably never will be entirely solved. If, however, the germs of these strange maladies are lurking somewhere, waiting for the right opportunity to strike in the atomic age, we shall be much better equipped today to cope with them than were the scientists of past generations. One of the brighter aspects of our imperfect modern civilization is the fact that we have made tremendous and gratifying progress in public health and preventive medicine.



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PUBLIC RELATIONS AND THE TECHNOLOGIST

(Continued from page 251)

Actually, as the observing outsider will readily detect, the jeers of the colleagues are mainly expressions of jealousy. As for the professional snobbishness, technologists simply must not underestimate the average man's intelligence or overestimate his backlog of information on a specialized subject. The average citizen will read and can understand a great amount of specialized information, if it is presented in his language and in terms of his own interests.

The technical man should not complain too loudly about the hazards of releasing technical information to the public press. What appears to him to be garbled and inaccurate newspaper stories may be more the fault of the original source of news than the fault of the writer.

If the technically trained person co-operates with reporters, he has a right to expect accurate reporting within the limitations of nonspecialized language. He is not justified in claiming to be misrepresented in non-technical publications if the minutiae are neglected, and if reasonable liberties of exposition are taken in order to convey a broad, forceful picture of the truly significant features of his work. He can, in fact, greatly aid a writer interpreting science by helping to find those modes of expression which best convey the significance of his work in everyday language, with reasonable precision, and in terms of experiences which are common to the average person.

The technologist can help the science writer by offering to review a story after it is written, to guard against gross inaccuracies or improper emphasis. When

(Continued on page 272)



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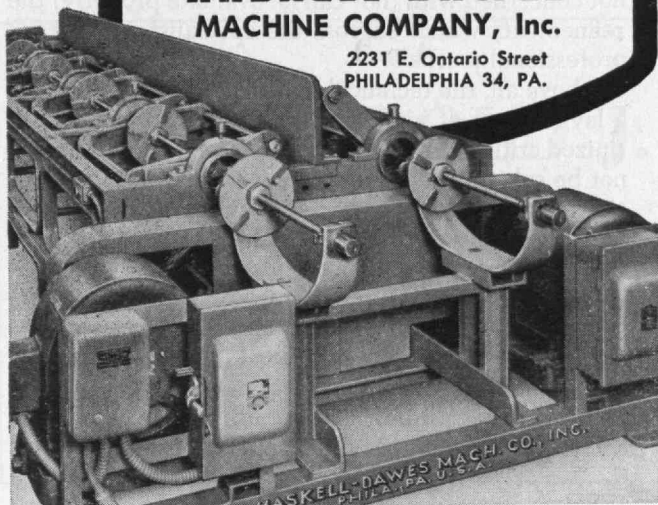
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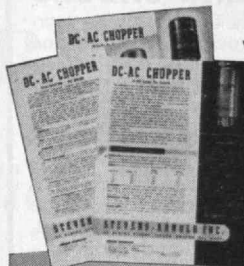
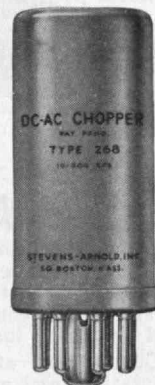
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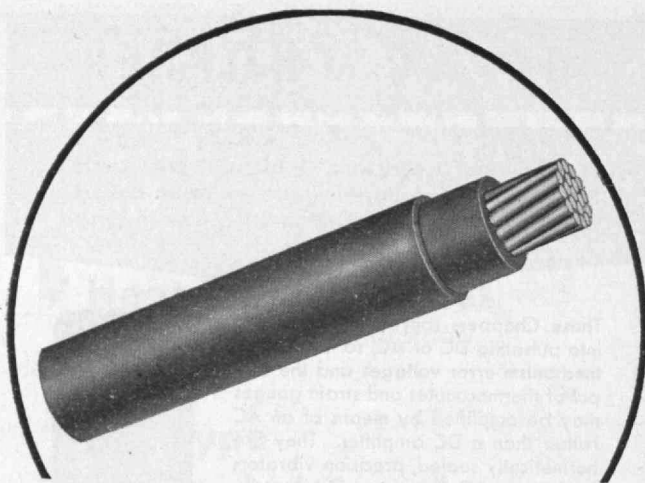
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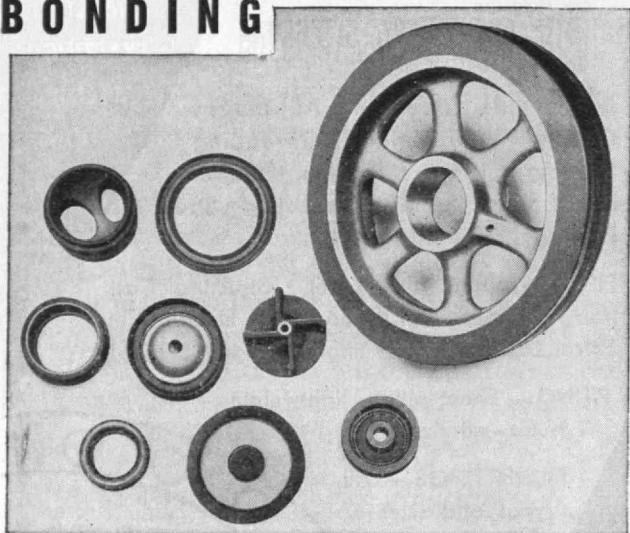
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PUBLIC RELATIONS AND THE TECHNOLOGIST

(Continued from page 270)

a news story is submitted for his approval, the technical specialist should stoutly resist all temptation to modify the story, other than to correct real errors. He should realize that the writer who interprets science for the general public probably knows his business as well as the scientist and engineer know theirs. The science writer knows that the lay reader needs a clear, well-defined interpretation of the research in its broadly significant features and that his attention and interest must be aroused. He knows that the layman is not concerned with (nor can he evaluate properly) the refinements which engross the specialist reading his professional journals.

Above all, the technical man should remember that a lay account of his work is not intended to be scrutinized critically by his professional colleagues; he will not be subject to their ridicule if he takes the precautions outlined above. If these admonitions appear harsh, let the scientist or engineer ask himself: "Is it easier for a newspaperman to learn technology than it is for me to learn to describe my work, and indicate its significance, in garden-variety English?" Let him also reflect on whose public relations are at stake.

In summary, the technologist needs better public relations to provide new sources of funds for his work and to gain proper recognition. Better public relations

(Concluded on page 274)

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PUBLIC RELATIONS AND THE TECHNOLOGIST

(Concluded from page 272)

is also his duty — a duty to show people how much their present and future welfare depends on technology. The technologist can achieve better public relations by making himself known as a human being striving to help other human beings. He can do this both by individual and group action. The most effective contacts with the public are the many small group activities about the community in which the technologist meets his public face to face. National societies and clubs also have their opportunities, mainly through the printed word. Public relations through the press is greatly facilitated if the individual technologist realizes the need to express his technical studies in terms of their usefulness to society.

So we see that good public relations, for the technologist and for everyone else, is mainly a matter of getting along with people. And perhaps that is as basic a reason as we shall find for the technologist to let his learning spread out more into the humanities — sociology, economics, history, English, and other studies that help us to know and to love our fellow man.

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Alumni AND Officers IN THE News

Gold Medal Men

The 1950 gold medal of the Massachusetts Horticultural Society was awarded to THOMAS C. DESMOND '09 for his development of a private arboretum containing more than 700 species of trees, shrubs, and vines.

CHARLES S. DRAPER '26 was given the highest civilian decoration of the Air Force on January 23 when he was presented with the Exceptional Service Award in recognition of his outstanding contributions in applying instrumentation in the field of aeronautics. Dr. Draper is most widely known, within the Air Force, for his development of a computing gun sight which is now standard equipment on the Air Force's new jet fighters and fighter-bombers.

RALPH RAPSON, staff, won the second prize in the "Better Living Home" competition of the National Association of Home Builders, with a design for a medium-priced home for living in the South, for which he also won a regional prize. Chairman of the jury of nationally known architects and builders who selected the winners was PIETRO BELLUSCHI, Dean of the School of Architecture at the Institute.

Between the Covers

Contracting as a Profession, second edition, written by FREDERIC W. LORD '93, is being translated into Spanish for use by a South American company. The book, published by Richard R. Smith Publisher, Inc., has been adopted by 50 colleges as required reading for engineers.

JEROME C. HUNSAKER '12 and NORBERT WIENER, staff, contributed articles to the "Science and Tomorrow" symposium section of the January, 1951, issue of the *Journal of the Franklin Institute*. Dr. Hunsaker wrote "Aeronautics" and Dr. Wiener, "Controlled Mechanisms" for the 125th anniversary issue of the magazine.

MURRAY P. HORWOOD '16 wrote "A Comparative Study of Milk from a Refrigerated Bulk Dispenser and Similar Milk Delivered in Sealed Bottles" for the *Journal of Milk and Food Technology*, November-December, 1950, issue.

ERNEST H. HUNTRESS '20 penned, for the third year, the article, "Centennials and Sesquicentennials During 1951 with Interest for Chemists and Physicists," appearing in the January, 1951, issue of the *Proceedings of the American Academy of Arts and Sciences*.

"Airport Requirements for Future Transport Aircraft" is the title of the paper by WARREN T. DICKINSON '31 which appeared in the December, 1950, issue of *Shell Aviation News*.

F. ROLF MORRAL '32 wrote "Mid-Century Reference of Heat Treating" for *The Iron Age*, January 4 issue. The article has been acclaimed as the most complete and modern index of references on time-tem-

perature-transformation reactions ever assembled.

ROBERT C. DEAN, JR., '48, is the author of an article, "Physical Education," in the December, 1950, issue of *College and University Business*; it describes the new physical education and recreation building at Mount Holyoke College.

ARTHUR C. COPE, staff, edited *Organic Syntheses*, volume 30, published September, 1950, by John Wiley and Sons, Inc.

Forward March

On January 1, WILLIAM L. CAMPBELL '15, formerly Head of the Department of Food Technology at the Institute, became vice-president of the Food Machinery and Chemical Corporation at San Jose, Calif.

THEODORE P. WRIGHT '18 has been named acting president of Cornell University, effective in February.

ALFRED T. GLASSETT '20 was elected president of the W. J. Barney Corporation in New York at the annual directors meeting in January.

On January 23, HERMON F. SAFFORD '23 was elected president of the Ohio Rubber Company at Willoughby, Ohio.

J. ROBERT BONNAR '27 became a national vice-president for 1951 of the American Association of Textile Chemists and Colorists, as announced at the 175th council meeting of the organization.

ROBERT R. BROWN '27 has been appointed chairman of the State Operational Communications Committee which will work out emergency communications plans for Massachusetts as a civil defense measure.

ROBERT T. SUTHERLAND '35 has been made vice-president and chief engineer of Brown and Bigelow in New York.

President Truman named FRANCIS W. SARGENT '39 as one of three men to serve as representative at the Northwest Atlantic International Fisheries Convention which will set up regulations for fishing operations in the region.

EDWIN R. GILLILAND, staff, has been recently elected to serve on the board of directors of the Dewey and Almy Chemical Company of Cambridge.

The American Society of Mechanical Engineers elected JOHN M. LESSELLS, staff, chairman of the Professional Divisions Committee for 1951.

Technical Talks

JOHN P. COE '13 spoke on "Synergism" at the January 19 seventh annual national technical conference of the Society of Plastic Engineers, Inc., held in New York.

JOHN R. MARKHAM '18 addressed the Boston section of the American Society of Mechanical Engineers on January 25, choosing as his topic, "The Naval Supersonic Wind Tunnel at M.I.T."

CHARLES D. CORYELL, staff, spoke at the conference on the physical and chemical properties of the rare earths at the Brookhaven National Laboratory, January 18.

Obituary

LONSDALE GREEN '87, January 22.
FRED R. NICHOLS '88, December 7.
HARMON WENDELL '91, in 1947.
FRED A. WILSON '91, December 4.*
JOSEPH W. ELLMS '93, February 7, 1950.
CHARLES B. HUBBARD '94, October 17.
ERNEST S. MACGOWAN '95, October 20.*
LAWRENCE K. SAGER '96, January 28.*
FRANKLIN E. BRAGG '97, January 2.*
CHARLES R. BALLOU '98, date unknown.
WALTER A. CLEAVELAND '98, December 3.
ALBERT J. FEARING '98, December 2.
LEONARD W. PACKARD '98, December 17.
JAMES K. CLARK '99, June 22.*
CLAYTON ALBISTON '01, December 21.
MANSFIELD ESTABROOK '01, December 29.*
H. B. LITCHMAN '02, November 28.*
HENRY O. TROWBRIDGE '02, January 29.
ELISHA WALKER '02, November 9.*
EUGENE D. FORBES '03, in January.
OSCAR C. MERRILL '05, January 15.*
GEORGE H. BUCKINGHAM '06, December 18.
WILLIAM R. TOMPSON '07, September 28.*
JAMES E. HALE '08, November 28.*
JULIAN H. H. HARWOOD '08, December 21, 1949.*
TEMOTEO DAR JUAN '09, October 7, 1943.*
HAROLD I. EATON '09, in January.
RALPH T. STONE '12, October 15.
JAMES H. WARD '12, September 2.
WILLIAM JOHNSTONE '13, February 19, 1945.
ALFRED L. LOEBENBERG '13, January 27.*
ROLAND WOODWARD '14, September 22.
THOMAS H. HUFF '15, December 31.*
JOSEPH R. DUGGAN '16, December 20.*
E. STANLEY FREED '16, November 13.*
DANIEL MCFARLAND '16, June 4.*
WARREN A. STRANGMAN '16, January 6.*
DAVID C. SANFORD '19, December 24.
GEORGE J. CUTLER '23, November 24, 1939.*
WILLIAM C. HAHN '23, September 11, 1949.*
WILLIAM B. RICHARDSON '23, November 10, 1944.
EDWARD C. O'BRIEN '25, December 10.*
WHEATON H. HUTCHISON '27, December 14.*
DONALD CALDWELL '31, in 1939.
JOHN F. GAMBER '31, December 25, 1949.
ALBERT C. REED '33, April 17, 1949.
ARTHUR B. ELLENWOOD, JR., '34, December 1.*
EDWARD F. EVERETT, JR., '36, May 24.*
KENNETH E. KEYES '38, October 5.*
CARROLL H. VAN DENBURGH, JR., '39 November 17.
JAMES F. LEVINS '40, September 16, 1949.
ERVIN ZARTARIAN '49, July 25, 1949.
JOHN C. WESTCOTT '50, December 2.*

*Mentioned in class notes.

News FROM THE Clubs AND Classes

CLUB NOTES

The M.I.T. Club of Buffalo

Although a fire on Thanksgiving evening burned down our rendezvous for the Fall Dinner-Dance, the Club goes on undaunted. Plans for a spring dinner-dance (in a fireproof place, we hope) are being enthusiastically promoted. More immediate — another plant trip is planned for the first of February and we expect a good turnout as the trips are quite popular with our group.

Tom Speller'29, as a member of the Citizens' Committee, attended the installation of the eighth chancellor of the University of Buffalo, Thomas Raymond McConnell, on January 6. Whit Ferguson '22 represented M.I.T. at this ceremony. We are also pleased to report that G. Owen Knapp'37, one of our members, has arranged for a four-year scholarship to be granted through the Knapp Foundation. — VLADIMIR HWOSCHINSKY'40, *Secretary*, 585 Crescent Avenue, Buffalo 14, N.Y.

M.I.T. Association of Cleveland

Our annual Christmas week luncheon for the students home for the holidays was a success. Those of us who were fortunate enough to attend received an inexpensive return trip to the Institute. The students who gave us short talks were: Bill Chandler'52, master of ceremonies; John Morgenthaler'51, who spoke about the buildings and campus, pointing out that we would not recognize the grounds, the latest addition to which is the building to house the new School of Industrial Management, given to the Institute by the Alfred P. Sloan Foundation. (This building was the Lever House.) Bob Hathaway'54 told us that the freshman week end is no longer held at the Technology cabin, but instead in Cambridge, with the principal activities carried on in the Rockwell Cage. Bill Gent'53 gave us the details which brought about the field day triumph of the freshmen over the sophomores, and it certainly reminded us of our own bout in the grass and dirt. Jerry Hartstein'51 reminded us that the Tech Show is still in character, having caused the dean of a woman's college to walk out during the show's stand at that college. Bob O'Donnell'53 told of the success of the cross-country and track teams. Helen Dugar'54 stole the show in answering the question, "Why Does a Woman Go to M.I.T.?" Al Zesiger'51, general manager of the musical clubs, assured us that M.I.T.'s culture continues to be enhanced through its music. Jerry Hathaway'52 gave us reason to believe that *Voo Doo* is continuing to fill the place for which it was designed.

In addition to the students mentioned, the following were our guests: Ralph Bell '52, Richard Hare'51, Roger Harsch'51, William Hartrick'54, Robert Hathaway'54, Alfred Hofstatter'52, Joseph Holloway'52, Charles Hunt'53, George Inada'54, John Martin, G., John Richardson'51, Donald Shingler'52, and Robert Steinberg'54. The Alumni in attendance were: I. E. Waechter'17, J. M. Waechter'22, F. H. Wood'22, C. H. Hubbard'23, H. Kirkham'23, R. H. Smith'23, W. H. Robinson, Jr., '24, S. F. Stewart'24, G. F. Way, 3rd, '24, H. McM. Bush'26, W. C. Sessions'26, E. E. Staples'26, V. W. McDaniel'29, R. H. Valentine'33, H. A. Zimmerman'37, J. P. AuWerter'38, M. G. Magnuson, Jr., '39, G. R. Mitchell, Jr., '39, J. S. Ewing'42, R. J. Fay'42, C. H. Smith, Jr., '42, R. J. de Fassel, 9-46, P. L. Nies'48, and T. E. Weil'49. — G. RICHARD YOUNG'37, *Secretary*, 300 East 131st Street, Cleveland 8, Ohio.

M.I.T. Club of Milwaukee

The Club, as is its custom, extended an invitation to all Wisconsin students, now enrolled at M.I.T., to a holiday luncheon, originally planned for the University Club, but actually held at the Wisconsin Club, December 28. In view of the close co-operation now existing between Ripon College and M.I.T., a similar invitation was extended to Ripon students who plan to enter Technology in the fall of 1951. The luncheon was so well attended that the change, noted above, had to be made at the very last minute to accommodate some 20 members and an equal number of guests. Needless to say, the Club was truly gratified. In addition to the 19 students from M.I.T. and the six students from Ripon College, our members in attendance included the following: George Anderson'24, John Ballard'35, Frank Briber'43, Maurice Crowell'24, Fred Gruner'41, Arnold Jakel, 2-44, Harold Koch'22, Chester Meyer'36, George Pollock'21, Win Russell'26, John Schmitz'49, Dave Smith'31, Dr. Lemuel Smith'06, Paul Tausche'49, and Emerson Van Patten'24.

The Club's activity in January consisted of our membership taking advantage of the opportunity afforded us by the M.I.T. Club of Chicago to participate in the Midwest Alumni Regional Conference, held Saturday, January 27, at the Museum of Science and Industry in Chicago, and sponsored by the Chicago group. — EMERSON J. VAN PATTEN'24, *Secretary*, 6160 North Kent Avenue, White Fish Bay, Wis.

M.I.T. Club of Monterrey

The Club's last meeting was held on January 2 at the Instituto Tecnológico de Monterrey. We had the pleasure of hearing Paul M. Chalmers, Associate Professor of English at M.I.T., in a round-table talk on "Admission of Foreign Students"

and on other important educational policies of M.I.T., with respect to its curriculum. We regret that our attendance was not as large as we wanted it, nor did we have the students we had expected due to the winter holidays. Professor and Mrs. Chalmers spent several days in Monterrey as guests of Messrs. Elosúa'23 and Muñoz'09; attenden the traditional New Year's dance at the Casino; and, in addition to the visit to the Instituto Tecnológico de Monterrey, saw many points of interest. — BERNARDO ELOSÚA'23, *Secretary*, Box 360, Monterrey, N.L., Mexico.

M.I.T. Club of Quebec

The Club held its first dinner meeting of the 1950-1951 season on January 11, 1951, at the Queen's Hotel in Montreal. We had the privilege of having as our guest speaker Donald P. Severance'38, Secretary-Treasurer of the Alumni Association of M.I.T., whose talk centered on the Association, with particular reference to the following topics: better students for the Institute; the placement and "replacement" of the graduates; and the independence of the Institute.

The Alumni present were: Henri Audet, 6-45, Claude P. Beaubien'34, Harry S. Chandler'08, Gerald G. Fisch'50, Felix L. French'39, Henri Gaudefroy'34, R. B. Graham'39, W. S. Hart'00, René Laplante'30, Jacques Laurence'40, G. Kenneth Marshall'41, Huet Massue'15, J. C. Merritt'16, W. K. Nonneman'36, Harold C. Pearson'23, Jean M. Raymond'34, A. D. Ross'22, Gabriel Rousseau'25, A. T. Eric Smith'21, D. J. Spence'97, Robert S. Sproule'47, and two guests, Roger P. Langlois and Maurice Gilbert. — JACQUES LAURENCE'40, *Secretary-Treasurer*, 1430 St. Denis Street, Montreal 18, Canada.

M.I.T. Club of Schenectady

This past month found the Club assembling at its monthly luncheon meeting to hear James Stokley, former director of the Fels Planetarium of the Franklin Institute of Philadelphia, speak to us on the subject, "Receding Horizons." As implied by the title, his subject matter was the science of astronomy, and in a brief, but complete, manner Dr. Stokely covered the history of this oldest of all sciences from Tycho Brahe to the present.

A short business session was held prior to the presentation of the guest speaker, and several committee reports were submitted. Of note is the report of the Civic Projects Committee which has been continuing its efforts toward the improvement of elementary school facilities in Schenectady. Messrs. Acker'38, Rodemann, 2-44, Lawrence'47, and Coffin'49, the members of this committee, met recently with the head of the board of education and the superintendent of schools to determine the board of education's position toward the means of financing the proposed additions and new schools. This meeting

was held to co-ordinate efforts before the issue is presented to the city council.

The following area Alumni were present at the luncheon meeting: J. B. Taylor '97, P. M. Currier '14, K. P. Coachman '22, A. deH. Hoadley '26, J. F. Lucey '29, C. F. Barrett, Jr., '34, J. E. Acker '38, J. H. Macleod, Jr., '41, D. C. Berkey '42, C. S. Hofmann '42, W. B. Rodemann, 2-44, J. H. Germer, 2-44, M. W. Hellar, Jr., '47, E. S. Lawrence '47, P. H. Baker '48, F. Brown, Jr., '48, and L. F. Coffin, Jr., '49. — On January 16, the Club again assembled at luncheon to hear Paul Schaefer, noted authority of conservation, discuss "The Forest Preserve." — EDWIN S. LAWRENCE '47, *Secretary*, General Electric Company, Building 99, 1 River Road, Schenectady 5, N.Y.

M.I.T. Club of Southern California

January has seen some long steps taken toward a more active organization in this area. At the University Club on January 11, Lobdell '17 was greeted by Bates '24, Beebe '10, Cunningham '27, Collier '18, Golsan '34, Grant '02, Grantham '25, Hereford '24, Herrick '24, MacCallum '24, McLellan '17, Mellema '15, Morton '13, Parker '06, Pitkin '37, Row '23, Stringfield '15, and Toll '23. Lobby told of the progress of the Development Fund. He also spoke of the gift by Sloan '95 for a school of industrial management, strengthening the education of Technology men.

President Bates appointed 10 of the Alumni and the Directory Committee as a nominating committee for new officers. This committee met on January 17 at the home of Bud Golsan '34 and elected Row '23 as chairman and Dickey '47 as secretary of the Nominating Committee. After the selection of the seven officers and eight governors, subject, of course, to action at the next meeting, President Bates promoted full discussion of a constitution and bylaws based on the sample sent by Don Severance '38 and the secretaries of four of the active clubs in the United States. The action was unanimous on the various provisions, the main idea being to make the constitution simple and the bylaws flexible, subject to revision by vote of the 15 officers after written notice of proposed changes. Fourteen were present at this meeting, including: Bates '24, Beebe '10, Cunningham '27, Dickey '47, Dingler '48, Doten '39, Golsan '34, Hereford '24, Morton '13, Row '23, Strauss '38, Herrick '24, Grantham '25, and Mellema '15.

The contract for the 1951 Directory was let, and the proofreading by the committee will be followed by one at Cambridge, due to the kind offer of Severance of the efficient records there. All Alumni in this area are urged to communicate at once with the Secretary if a blank has not been filled out. At the same time, the best results are secured by crossing his hand with silver, \$1.00 in the present depreciated coin, to be exact, for a subscription. — Es-sick '22 sent in his ad with regrets on not being able to be at the committee meeting, as he has just accepted presidency of the Merchants and Manufacturing Association of Los Angeles. His branch in Little Rock, Ark., and the large subsidiary

in Milwaukee, Wis., also required his absence often from this area. However, his counsel, as well as that of others in similar positions on an advisory committee, would be of great and far-reaching value to the Alumni in this area. — HIRAM F. BEEBE '10, *Secretary*, 1847 North Wilcox Avenue, Hollywood 28, Calif.

CLASS NOTES

• 1887 •

At last we have located Gelett Burgess. His permanent home will be at Carmel, Calif., Post Office Box 3005. He was last with us at our 40th reunion at Marblehead, and he certainly was the life of the party. As usual, we ended up with a banquet and he, at the head of the table, acted out and spoke a monologue. His subject was how a guest should or should not act at the dinner table. Even the waitresses could not be controlled, a rather unusual feature for them. In the afternoon on the campus of M.I.T., in the east enclosure used by speakers, he entertained, and his first utterance was just what was expected from one author who prospered by his wit. He stated that had he lived 50 years earlier, his parents would have sent him to Harvard, Heaven forbid! During his years at Technology, he edited the Institute's monthly magazine. After graduation, he taught topographical drawing at the University of California. Burgess, in his time, has written 40 books, and both he and George Ade have found their excerpts in Bartlett's *Familiar Quotations*. He was born in Massachusetts, but most of his life was spent in New York. He actually coined two words that can be found in Webster—"blurb" and "bromide." His own definition of a blurb is: "A noise made by a publisher."

Your Secretary spends from November to May in Florida at Fort Myers, which is so far south in the state that in six seasons there he has never seen frost, at least a temperature of 31 degrees or lower. But at the age of 87, all he asks of Florida is a decent climate, and Old Sol never fails to shine. — LONSDALE GREEN, *Secretary*, Bradford Hotel, Ft. Myers, Fla.

[The Alumni Office has just received word of the death of Lonsdale Green on January 22 at the Bradford Hotel, Ft. Myers, Fla. — Ed.]

• 1891 •

Our esteemed classmate, Fred A. Wilson, passed on at his home in Nahant, Mass., on December 4, after a most active and notable life. He was born and lived his full life in Nahant, where, because of his continuous, unselfish, and devoted activities, he came to be acclaimed as its "first citizen." He graduated from M.I.T. the youngest member of the Class of 1891, I believe, and continued there as a teacher for two years before joining his father, Joseph T. Wilson, in the building business as J. T. Wilson and Son, a company devoted principally to fine residence work.

He was a trustee of the Master Builders

Association of Boston in 1915 and 1916, president from 1917 through 1919, and a frequent contributor to the Association's publications on economic subjects. He was chairman of Nahant's 50th anniversary committee in 1903. He was the author of *Some Annals of Nahant*, an authoritative history of the town in 1928, and was president of the Lynn Historical Society and active in various other New England societies. He was president of the Boston Nahant and Pine Steamship Company from 1906 to 1916; president of Wilson Motors, Inc., of Lynn; vice-president and a director of the Essex Trust Company of Lynn; and a trustee of the Lynn Institution for Savings. For 50 years he was on the Nahant Board of Library Trustees and was chairman of their new building committee. In civic affairs he was closely associated with the late Henry Cabot Lodge and succeeded him as town moderator for the following 30 years.

About three years ago he suffered a severe case of pneumonia from which he never fully recovered, and which explains his absence from our later class gatherings. — FRANK W. HOWARD, *Secretary*, Bemis Associates, Inc., Watertown 72, Mass.

• 1893 •

Our classmate, William F. Lamb, collapsed and died almost instantly in Boston on December 18. He was a graduate of Course VI and for five years, until 1898, was associated with the American Telephone and Telegraph Company in New York and Pittsburgh. At that time he resigned his position with the telephone company to enter the wholesale lumber business with his father. He had been actively engaged in this business until his retirement in September, 1950, at which time the firm of Cunningham, Lamb and Prince, Inc., of which he was president and treasurer, was dissolved. Additional information regarding his business and social connections are recorded in the published reports of our 30th and 50th anniversary meetings, both of which he attended. He is survived by his wife, the former Edith V. Tupper; a son, Eric Franklin, residing in Rio de Janeiro; a daughter, Mrs. Eleanor O'Neil of Newton Highlands; a sister, Mrs. Chester Morrison of Brookline; and four grandchildren.

At a recent meeting and dinner of the Caledonian Hospital Society, Charles F. Garlich was feted as the only living member of the founders of the Caledonian Hospital, which he has served as secretary to the board of directors since the hospital received its charter from the State of New York in 1910. The Caledonian Hospital Society was organized in 1908 by a group of Scotch-Americans for the purpose of building and maintaining a Scotch hospital in the Borough of Brooklyn for the benefit of Scotch people and their descendants. — FREDERIC H. KEYES, *Secretary*, Room 5-213, M.I.T., Cambridge 39, Mass. GEORGE B. GLIDDEN, *Assistant Secretary*, 38 Chauncy Street, Boston 11, Mass.

• 1895 •

We have received most interesting news and notes from our classmate and

elder statesman, Gerard Swope, about some of his many activities. Gerard (and Mrs. Swope) took a five months trip to the Far East, including Asia's newly independent countries, traveling, not as a professional man, but as chairman of the American Institute of Pacific Relations, and as a private citizen interested in the changing status of the Far East and its increasing significance in world affairs. He states: "I began with little conception of the magnitude of Asia's problems. But first-hand evidence offered me a picture of Asia in evolution, in which the major elements were deep-rooted poverty, social and economic backwardness, political immaturity, a spirit of nationalism, and a lack of elementary education. These five basic factors, I believe, are the essential keys to an understanding of the Far East and the problems with which it is faced in this period of development."

"Hunger is the all-pervading fact of life for southeast Asia's 700 millions of people — nearly one-third of the earth's inhabitants crowded into one ancient and tired tenth of the earth's surface. In India, on the 900-mile railroad trip from Bombay to Delhi, there are huts, built of mud, straw, and cattle dung, squatting wretchedly on mile after mile of eroded land. People bearing the visible signs of starvation walk the roads, and every station has its throngs of beggars. Emaciated cattle — the sacred cows that the Hindu religion forbids killing for food — wander everywhere over the countryside, through the streets, even nuzzling into the doorways of the buildings. Motoring from Delhi to Agra, it seemed as if the only reasonably well-nourished creatures I saw were the monkeys, which steal the farmer's seeds out of the ground, and vultures, full-fed on the bodies of dead animals. The Asian nations are passing through a phase which the United States experienced in its early post-revolution period. Independence and the rights of citizenship have provided the major drive; regional and other factional interests remain to be reconciled. Only now are the Asian leaders themselves beginning to recognize the need for strong, centralized administrations to lead their people and carry out the essential reforms. Most of the countries of southeast Asia, forced to build their administrations and educational systems from the ground up, have not yet been able to provide even public elementary education. But in some places teachers are now being brought in and schools established. Pakistan has reduced its illiteracy rate from 90 to 80 per cent in the few years since independence."

"We can help the inevitable change into peaceful and beneficial channels by giving the encouragement of sympathy and financial help to the Asian governments for their projects of land reform, health and sanitation, industrial development, and education. They must be encouraged to establish strong national governments to administer their programs efficiently, without the corruption that was long a part of the colonial and the autocratic traditions. In the all-important field of agriculture, we can supply them directly with technical advice and with simple tools — not heavy agricultural machinery, which their people are not yet

capable of handling and which are apt to be discarded to rust at the slightest bafflement of needed repairs. But we must do all these things without trying to force our own dynamic, highly technological pace upon a people just awakening, and without trying to force our own highly developed political forms on nations which have only begun to understand the basic governmental processes. With understanding at the root of our actions, and only with understanding, can we help the people of southeast Asia achieve the security and stability toward which they are reaching and to which, as the inhabitants of an area long by-passed by progress, they have every claim." Gerard visited with Prime Minister Nehru at New Delhi, and also with Sjahrir, Indonesian leader.

From the Alumni Register, we learn of the passing of Ernest Stainworth MacGowan, who was with our Class during the years 1891–1892. Our records indicate that he was associated with Universal Atlas Cement Company, and lived for his many years in Minneapolis, Minn. — LUTHER K. YODER, *Secretary*, 69 Pleasant Street, Ayer, Mass.

• 1896 •

Before these notes are received by our Review readers, you will have carefully analyzed and made suitable reply to a form letter relating to our 55th reunion. Further comment seems hardly necessary, if you have already made replies as to your expected class reunion plans. Our decision was a difficult one, in that some of us would prefer the East Bay Lodge facilities because of the deep and lasting associations which Wiano reflects. The New Ocean House is but 10 miles from Boston and immediately solves the transportation problem, as well as giving a section of our New England coast line for you western chaps to explore. Let's make this an outstanding reunion. Every facility for an enjoyable sojourn will be planned for. Send along any suggestions which occur to you as adding interest to our informal get-together. If you find it impossible to make the trip east at this time, kindly send us a brief account of your present activities. I think we should put this down as a must, for we find an increased interest in the activities of our classmates with the years.

Members of the Class of '96 will be sorry to hear of the sudden passing of Norman Franklin Rutherford at his home, "Capparoo," Woollahra, N.S.W., Australia, on September 26. Mr. Rutherford lived in the United States for 53 years, and during that time held various positions of interest, including affiliation with the International Railroad of Mexico, and later the Explotadora de Gaucho, S.A., Mexico. He eventually retired to Central Islip, N.Y., where he lived quietly for several years experimenting in plastics, a field in which he was keenly interested. His eyesight then became troublesome and he decided to return to his native land where he seemed to regain a new lease of life in the sunny Australian climate; and despite his years, he went for a swim or a sun bath almost every day. He was happy, active, and alert until the day of his death,

departing in his sleep quietly and peacefully as he had lived, aged 79 years. He is survived by his wife.

On January 28, Lawrence K. Sager, 1019 Abbott Boulevard, Palisade, N.J., died after a lingering illness. The Class will greatly mourn and miss Lawrence, and our deepest sympathies are extended to his devoted wife.

We learn, through a letter from our classmate William D. Coolidge's secretary, that Dr. and Mrs. Coolidge left on January 15 for an extended trip to Mexico for at least six weeks to two months. — From the Institute comes word to your Secretary of the Class of 1896 Fund: "The effective date of the resolution in regard to your Class Fund passed at your April 2, 1949, meeting has now passed. In accordance with that resolution, we have renamed your Class Fund, the 'Charles E. Locke Memorial Fund.' To make this fund most effective, we contemplate converting to principal enough of the accumulated income to create a \$10,000 scholarship fund which would provide a one-half scholarship annually. It will be noted that preference be given a descendant of the Class of 1896. I thought you would be interested to know the action the Institute was taking in regard to the resolution relinquishing your Class Fund. (Signed, John A. Little, Accounting Officer, M.I.T.)" — JOHN A. ROCKWELL, *Secretary*, 24 Garden Street, Cambridge, Mass. FRED W. DAMON, *Assistant Secretary*, 275 Broadway, Arlington, Mass.

• 1897 •

From the New York *World-Telegram* and *Sun* of December 20, 1950, we learn that Irene du Pont has given \$75,000 to Dickinson College in Pennsylvania to endow a faculty chair in memory of his grandfather, a student at the college 135 years ago. The chair will be known as the Alfred Victor du Pont Chair of Chemistry. — James W. Smith and wife have been spending some time this winter at Indian Rocks Beach, Fla. Jim, formerly superintendent of the Torrington Company, Torrington, Conn., is now retired and lives in Litchfield, Conn., with a summer home in Brimfield, Mass.

Notice has come to your Secretary, without further details, of the death on January 2, 1951, of Franklin E. Bragg, VI, of Bangor, Maine. Your Secretary has, even at this period of 58 years after, very vivid recollections of a night spent with Franklin on the top of the ticket office at the South End baseball grounds in Boston. It was the night preceding the annual cane rush between the freshmen and sophomores, which in those days was quite a gory affair. We, as freshmen, had by bribery of the caretaker gained an early entrance to the grounds, and it was our job to keep the sophomores out. One of the points of advantage from which to repel boarders was the roof of the ticket office, and it was there that Franklin and your Secretary were stationed. Operations Ticket Office was quite successful, for no sophomore invaders entered the grounds at that point. If further particulars of Franklin's passing are obtained, they will appear in the next Review. — JOHN A.

COLLINS, JR., Secretary, 20 Quincy Street, Lawrence, Mass.

• 1899 •

Samuel B. Robertson, I, who retired in 1943 to try his hand at farming, has had an interesting and useful career. For a year following graduation he was a draftsman in the office of the bridge engineer of the Pennsylvania Railroad at New Haven, Conn. Between 1900 and 1920 he steadily climbed the ladder from transitman to assistant division engineer on the Panhandle division of that road, with headquarters at Pittsburgh. From there he went to Columbus, Ohio, as division engineer of the Indianapolis division, thence to the Erie and Astabula division as division superintendent. Later he was transferred to the Cleveland and Pittsburgh division at Cleveland in the same capacity. The Central System then hunted him out and made him general superintendent with headquarters at Toledo. Railroad engineering gets in a man's blood, but in 1920 Sam exchanged the atmosphere of smoke for the incense of rubber at the B. F. Goodrich plant at Akron where he was appointed director of engineering, traffic, and maintenance. Then he became vice-president and general manager of the company at Los Angeles. Later, he became vice-president, then executive vice-president, and finally the president of the Akron plant. After he retired, he worked four years at farming. Sam then gave that up and is now located at 220 Harrison Street, Lynchburg, Va.

Laurence A. Hawkins, VI, retired engineer, has written a history of the General Electric research laboratory which has just been published by William Morrow and Company, New York. The book, consisting of what the author describes as "sketches," carries the famous laboratory from its founding in 1900 to the present day. It is dedicated to Willis R. Whitney, the laboratory's first director. Laurence retired from the General Electric Company in 1945 after 45 years of service, 36 of them as assistant to the laboratory director or executive engineer. A Williams graduate, in the class of 1897, he secured a S.B. degree at Technology in 1899 and returned to Pittsfield where he took a job with the Stanley Electric and Manufacturing Company. When that local firm was merged with the General Electric Company, he went to General Electric headquarters in Schenectady. He joined the laboratory staff in 1912. Last spring, Mr. Hawkins, now 72, founded the mohawk Development Service with a group of other retired engineers.

James K. Clark, II, of 411 Liberty Street, Warren, Pa., died on June 22, 1950, according to information received from the Alumni Secretary. — BURT R. RICKARDS, Secretary, 381 State Street, Albany, N. Y. MILES S. RICHMOND, Assistant Secretary, 201 Devonshire Street, Boston 10, Mass.

• 1901 •

When you read these notes, the annual class letter will be past history. I hope that at least it awakened your interest in the coming reunion, which is now not far away. Will you please take particular

pains this year to send in your news letter promptly with the information concerning the reunion. If later you change your mind, let me know. The planning of this affair involves considerable work and you can make it a great deal easier by co-operating.

In the class letter, I reported the death of Mansfield Estabrook on December 29 in New York City. Mrs. Peterson has sent me the following from the New York Times: "Mansfield Estabrook, who had been associated with the machine tool industry, died on Friday in his home, 50 West Ninth Street, after a long illness. He was 73 years old. For many years he had been with Niles-Bement-Pond, both here and abroad, and had been vice president of Maag Gear Corporation, a subsidiary. During the second World War Mr. Estabrook was expeditor of machine-tool production in the New England area for the War Production Board. He had also been Australian representative in procurement of machine tools. After the war he was with Brown, Harris, Stevens Corporation, real estate firm. Born in Philadelphia, the son of John Davis and Eliza Mansfield Estabrook, he was graduated from Harvard in 1899 and from M.I.T. in 1901. During the first World War Mr. Estabrook served as a Captain in Army Ordnance. Surviving are two sons, John N. and James, a daughter, Miss Laura Estabrook and four grandchildren."

From Mrs. Peterson comes the following: "Bob Derby writes that he has no news to give out of himself which is printable. He adds that in a recent issue he was misreported as having said that Guatemala was 'the nicest country in Latin America.' The words should have been 'most interesting.' Those who really know Guatemala and its politics will get the difference. Bob also says that if he can beg, borrow, or steal the necessary funds, he hopes to go again to the Caribbean this spring." — Ray Murray, Blue Ridge, Summit, Pa., writes: "I am still active in the work in which I have been engaged for nearly 50 years, i.e., building bridges in the field and advising on the design and construction of such bridges, chiefly for railroads. Last month I received a proposal to cover the reconstruction of a bridge over the Baltimore and Ohio Railroad at North Branch, Md., and this month I submitted a report on the use of Diesel locomotives on a two-span truss bridge over Codorus Creek at York, Pa. However, as I shall be 75 years old next month, it is possible that the field construction part of my work will be gradually relinquished. I hope to continue as a consultant for a long time." Harry G. Folsom reports from Los Angeles: "I retired December 31, 1948, from John A. Roebling's Sons Company, Los Angeles branch, where I had been for the previous 31 years as a sales engineer, which, as you know, is just a fancy name for a peddler. Have three children, two boys and one girl, and seven grandchildren, three boys and four girls, all living in California. Keep busy with maintenance and repair work around the home and a rental or two I have." Leonard P. Wood, White Plains, N.Y., says: "Retired from Board of Water Supply of the City of New York as senior

civil engineer on the personal staff of the chief engineer, on June 30, 1942, two years after the statutory age limit (which is 70 years)."

From Leon E. Crouch, West Warren, Mass.: "Occupations change. I am doing some general farming. I raise some fruit. Principal business is raising capons and chickens, and I keep some laying hens. I am chairman of the Board of Assessors of the Town of Warren." Robert E. Bruce, Redlands, Calif.: "I am now professor of mathematics emeritus. I was never busier in my life. Hope to be at the reunion next June." Phil Potter, Hohokus, N.J.: "I am still senior engineer on water supply with the New Jersey Board of Public Utility Commissioners." Alton P. Trufant, Whitman, Mass., says that he sold his engineering business and retired in 1947. Harry A. Hodgdon, Wollaston, Mass., is still working every day with Stone and Webster. He retires in 1952. David H. Cowell, Hingham, Mass., retired in 1943 after nearly 40 years aggregate with the New Haven Railroad in the Motive Power Department. George T. Wilson, Danvers, Mass., was retired in 1947 after 42 years with the Warren Brothers Company, Boston. James H. Carr, Cambridge, Mass., is with the U. S. Army Corps of Engineers, New England Division, Boston. J. P. Catlin, New York City, writes: "Three years ago I was retired as vice-president of the Wood Newspaper Machinery Corporation, Plainfield, N.J., on pension. Two years ago went back to work as president of Virkotype Corporation, Plainfield, N.J." Clarence L. Brown, Haddon Heights, N.J., says: "Have just completed my 25th year with Wark and Company, builders in Philadelphia, during which time we have completed some of the largest projects here and in other cities in the East." P. L. Crittenden, Milwaukee, Wis., retired, was with Westinghouse Air Brake Company from 1903 to 1920 and from 1931 to 1946. From 1920 to 1931 he was in Milwaukee, as chief engineer, vice-president, and general manager of National Brake and Electric Company, a subsidiary. George L. Mitchell, who has retired and lives in San Diego, Calif., says: "Sorry that I shall not be able to be at the 50th reunion to see how many of my friends I could recognize after half a century." From Russell H. Glover, Harrington, Maine, comes the following: "Outside of a little blueberry business and similar local activities, I have retired from active business and shall doubtless remain here in the old homestead for the rest of my sojourn in this 'vale of tears.'" Harry J. Lohbiller, Miami Beach, Fla., reports that he has been retired since 1945. In that year he sold his company, the American Power Piping Corporation of St. Louis, Mo., to his chief engineer and others. Paul Hilken, in North Franklin, Conn., says that he quit business in 1939, bought a so-called farm (22 acres), and has worked harder during the last 12 years than ever before in his life.

Phil Moore sends me the following notice: "The beginning of the new year emphasizes how close we are to June with Alumni meetings in Cambridge and especially our 50th reunion. It is planned to hold the reunion at Oyster Harbors

Club, Osterville, on Cape Cod. The Class Day and commencement exercises of M.I.T., 1951, will take place June 7 and 8 at Cambridge. The 50-year Class is invited to attend. We will leave there the afternoon of the 8th and remain on the Cape until Monday morning, the 11th, when we return for Alumni Day exercises and banquet in Boston. There will be plenty of transportation. The questionnaires sent out several months ago have brought replies from about 65 members of the Class: 55 members are coming and 24 are bringing their wives. Some 250 questionnaires were sent out. If you have put yours aside to be answered when you were surer you could come, now is the time to dig it up and send it in. If you have lost it, just write Ted Taft you are coming with or without your better half. It will help in the planning of the party. The ladies' affairs are in the hands of their own Women's Committee. You have recently received Al Higgins' appeal for subscription to the class gift to M.I.T. in honor of the 50th anniversary of its graduation. We began the century, let's give it another push at mid-term. Send in your subscription and help make the response unanimous." — THEODORE H. TAFT, *Secretary*, 21 Cypress Road, Wellesley Hills 82, Mass. WILLIARD W. DOW, *Assistant Secretary*, 287 Oakland Street, Wellesley Hills 82, Mass.

• 1902 •

Our Class has lost two members by death: Elisha Walker, Course XIII, died at his home in Syosset, Long Island, on November 9, 1950, after a long banking career which started shortly after graduation. He was first with Fisk and Robinson in New York for two years and then 16 years with William Salomon and Company, 10 years as a partner. In 1920, he became president of Blair and Company, which later became Bancamerica-Blair Corporation. He played a part in several of the gigantic oil transactions of Wall Street and in 1930 became chairman of the board of Transamerica. He later became involved in a struggle with Gianini of the Bank of Italy as to the policy to be followed by Transamerica, lost out, and retired from the board chairmanship. In 1933, Walker became a partner in the banking firm of Kuhn, Loeb, and Company, where he remained until his death. He was a director of the Diamond Match Company, Armour and Company, Tide-water Associated Oil Company, Industria Electrica de Mexico and Inversiones Latinas, both in South America, the Hat Company of America, Moore-McCormack Lines, Inc., and Rockwell Manufacturing Company. He is survived by his widow, Adele D'Orn Walker; four sons, Robert E., Louis R., Elisha, Jr., and Bayard Walker; and a daughter, Mrs. Adele W. d'Assern.

Harold B. Litchman, III, died suddenly on November 28, 1950, in Marblehead, Mass., where he had lived all his life. For many years he taught in the local high school but had been retired for a few years. He took an active part in the several fraternal organizations and was much beloved by his neighbors and fellow

townsmen. — BURTON G. PHILBRICK, *Secretary*, 246 Stuart Street, Boston 16, Mass.

• 1903 •

Those of us who have retired from our life's work and regular duties, and either think we are going to live a life of rest and comfort, or wonder just what we are going to do to keep busy, find we need never have to sit down and rust out. More and more of us find there is always a job that we can do, if we will, and still have our faculties. H. S. Morse, I, is finding this out. Retired about a year ago, he was elected president of the new Marion County Council in the fall. This is a seven-member body, all Republicans, which controls the county finances in Marion County, Indianapolis, Ind. Besides his membership in various engineering societies, he has been, or still is, a member of the Chamber of Commerce, First Presbyterian Church, Rotary Club, Fletcher Trust Company, Civilian Defense, Meridian Hills Country Club, and has held offices in all of these organizations. Retired? No, just changed his main occupation. On the other extreme is Myron Clark, V, who is here, there, and everywhere, talking on management, in all its phases, before societies for the advancement of science, industrial relations, employer-employee relations, and so on. A retired member of the Class, Charles L. Bates, I, who for many years was chief engineer and manager of a Canadian railroad that runs up into the mountains in British Columbia, writes: "I retired in 1944 as I am rather lame as the result of various speeder accidents and such on the railway in years past; and, as the years pile up, the old weaknesses come back again, so that I am not very active on my feet, though I seem to keep pretty busy, largely at my hobby of cabinetmaking." In summer, he lives on Savary Island, some 150 to 200 miles north from Seattle, between Vancouver Island and the mainland. In the winter, he moves into Vancouver.

At the other extreme of the country, four or five of our Class, wintering or living in Florida, are planning another winter '03 reunion. Hewitt Crosby at Fort Lauderdale, Lounsbury at Fort Myers, Chase at St. Petersburg, Frank Cox at Miami, Regestein at West Palm Beach, and, they hope, Tom Sears with possibly others, may get together in February. Speaking of Chase, we were glad to get a good letter from him. He still calls New York City his legal residence, but summers in Peterborough, N.H., and winters in Florida. We were especially glad to hear personally from both Bates and Chase, whom we knew well some 40-odd years ago. Just a final reminder of our 50th anniversary in two years, and the class gift. Contributions are coming in slowly, and we anticipate a creditable showing. What about an intermediate class reunion in Boston this coming June? The Secretaries would appreciate word from all interested. — FREDERICK A. EUSTIS, *Secretary*, 131 State Street, Boston 9, Mass. JAMES A. CUSHMAN, *Assistant Secretary*, Box 103, South Wellfleet, Mass.

• 1905 •

Errett M. Graham, I, writes: "I'm still retired and still living with my wife, Helena, on Shaw Island, Wash., of the pleasant and picturesque San Juans. My work around this 90-acre, mostly wooded place is only interrupted by occasional land surveying jobs and searching for witness trees marked by government surveyors in 1877. Oddly enough, the 73-year-old lettering on the bark of the trees, or on the wood just beneath, can still be deciphered. Two of our children, Ernest and Martha, are employed with the Douglas Company at Santa Monica. However, Martha is right now studying at Cornell, having been awarded the Amelia Earhart Scholarship by Zonta. The third and oldest child, Mary, is married and living in Berkeley. No grandchildren." Through the *Atomic Energy Newsletter* of January 2, 1951, we read: "Atomic Instrument Company, Manufacturer of research nuclear measurement instruments, is now shipping 99% of its production to the main U. S. Atomic Energy Projects and their sub-contractors, according to Leonard W. Cronkrite, President. In new quarters (opposite M.I.T., Cambridge, Mass.) approximately 4-fold increase in space has been necessary." Len was a Course IV man.

By dint of considerable effort George A. Hool, I, has been discovered and contacted. He says: "Although I'm late in answering your letter of December 11, I was certainly glad to hear from you. The fact is I've been somewhat under the weather and may not do any further work until I'm thoroughly O.K. again, probably a few months from now. It's so unusual for me to hear from a classmate that I'm glad to comply with your request and give you a brief résumé of my experiences since leaving Technology. I married Helen Eber in October, 1906. We have three children, a girl and two boys, all married. . . . All are well and happy, including my wife, Helen, who is with me here. My experience in civil engineering is probably quite well known. Soon after leaving M.I.T., I spent considerable time in the employ of the New York Central Railroad and the Highway Department of the State of New York. Then I started the civil engineering department at the University of Oklahoma, Norman, Okla., where I remained for two years, followed by 20 years as head of civil engineering at the University of Wisconsin, Madison, Wis. During my university experiences, I was a consulting engineer on my own, mostly with regard to structural engineering work, and I also prepared many books on this phase of civil engineering — 14 in all — published by the McGraw-Hill Book Company. These books have sold extremely well. I left the University of Wisconsin in 1930 to become vice-president of the Ferguson Company, for whom I had secured two years of work. Upon completion of that work, I became consulting engineer again, until the United States entered World War II. I acted as special consulting engineer for both Army and Navy until 1947, when I was appointed chief engineer for the work in Greece by the pool of three contracting

firms who were selected to do almost all of the construction and reconstruction in the American aid to Greece projects. After this work was completed in Greece, I spent time and work in France and nearby nations. I returned here to take up work in Alaska but have decided not to undertake it after all, for the present at any rate. Of course, I have been interested in many things in addition to the work I have above described. I have been president of two financial companies, president of a country club, chairman of many committees, and so on." Hool's address is 1405 Fifth Avenue, San Rafael, Calif.

I acknowledge receipt of Christmas cards, among them those from Olive and Maurice Landers of Dallas, Texas; Lawrence Whittemore, Houston, Texas; Lucy and Ed Barron, Pittsburgh; Harry and Blanche Gabriel, Cincinnati; Ros and Helen Davis, and others. The Davises must have gone into zoology, for Helen is riding a buffalo and Ros is just about to take a high dive off a Texas Longhorn. Ed Barron reports that Bill Blakeman's condition is about the same, which isn't too encouraging. The Gabriels have since arrived in Key West for a vacation, then to Cincinnati via the West Coast. Whittemore reports his physical condition sufficiently improved as to permit a visit to his son in eastern Tennessee. Charles L. Dean, III, now retired, reports having resided for 12 years in "this very pleasant spot, Carmel, California." Has two married daughters and two grandchildren, one living in Australia, the other in Denver, Colo. "Am in good health and live a very quiet pleasant life with the best wife in the world and many good friends."

Oscar C. Merrill, I, passed away at the age of 76 at Washington, D.C., on January 15, after an illness of nearly three years. O. C. lived a remarkably active and useful life. The following is a compilation of excerpts from obituaries from five Washington and New York papers. "Dr. Merrill was born in Manchester, Maine. He earned an A.B. from Bates College and a B.S. from M.I.T. in 1905, an honorary doctor of science degree was conferred on him by Bates in 1925. After leaving M.I.T. he taught civil engineering for a year at the University of California, entering the Forest Service in 1909. He was one of the first to realize the need for greater use of the nation's water power resource. While serving as Chief Engineer of the Forest Service he drafted the Water Power Act, which brought most of the water powers in this country under Federal control. He became executive secretary of the Federal Power commission in 1920, a position which he held for nine years. While with the F.P.C. he organized United States participation for the first World Power Conference held in London in 1924. In 1929 he resigned to become permanent chairman of the American Committee of the W. P. C., the second session was held in Berlin in 1930. He was director of the third World Power Conference held in Washington in 1936 and edited the extensive report on the conference. In 1942 he was engineer-economist of the United States-Mexico Oil Commission, set up to determine the com-

pensation due American Oil Companies by the Mexican government after that country had taken over their properties in 1938. Later six months as principal engineer of the Army Engineering Board, retiring on January 1, 1943. He was author of *Electric Power Development in the United States*, a three-volume work published by the Government Printing Office in 1916, also edited *The Second International Congress on Large Dams*." — FRED W. GOLDTHWAIT, Secretary, 274 Franklin Street, Boston 10, Mass. SIDNEY T. STRICKLAND, Assistant Secretary, 69 Newbury Street, Boston 16, Mass.

• 1907 •

In the December Review I told of George Norton who retired from active business and moved to California. Since that time I have received a letter from George which reads, in part, as follows: "I retired and came back to California to live because my only son is married, has two youngsters, lives here and is in business, and 3,000 miles (in Pittsfield, Mass.) was too far away for Mrs. Norton and me to be. We bought a house about three miles from my son's home so that we can see his family every day or two and yet not be near enough to spoil the kids. We have a small but very comfortable house in which I have fitted up a small workshop and am having a glorious time." George's address is 3140 Edison Street, San Mateo, Calif.

In the January Review I mentioned the retirement of Harold Reed from the telephone company and gave his address as R.F.D. #2, Bristol, N.H. A note from him dated January 12, 1951, reads, in part, as follows: "We have had, for six or seven years, an all-year-round red and white Cape Cod cottage, which is 150 years old, located a little over two miles out of Bristol Village towards New Hampton and have been using it as a summer place. Since last July we have been remodeling and modernizing it and are just about getting finally settled down now. I have no immediate plans except to rest for a while. There is little in the way of opportunity for work in this vicinity. Both of our boys, who are twins, have left college and have joined the Navy."

I would like to express my thanks to men of the Class who sent me Christmas cards. Among them was a card from Merton Sage which has a cut on it showing a ranch-type house which he finished building during 1950, located at 20 Courseview Road, Bronxville, N.Y., in which he and his family are now living. A card from Milton MacGregor bears a photograph of an old but very large and attractive house located at Brewster, Mass., in which he and his family live. — The name of Canadian Trade Minister Clarence D. Howe continues to appear frequently in newspapers and periodicals. An article in the Boston *Herald* of January 1 states that he was planning to ask the coming session of the Canadian Parliament to vote approximately \$30,000,000 for the construction of an atomic energy pile. This second Canadian pile is to be much larger and many times more powerful than the present one. — William R. Thompson, who was associated with our Class in the Course in

Civil Engineering, died on September 28, 1950. His most recent address was 15 Pleasant Street, Wakefield, Mass. I have no information about his activities since 1907. — BRYANT NICHOLS, Secretary, 23 Leland Road, Whitinsville, Mass. PHILIP B. WALKER, Assistant Secretary, 18 Summit Street, Whitinsville, Mass.

• 1908 •

The second dinner and meeting of the 1950-1951 season was held Tuesday, January 16, in the Grill Club Room, Thompson's Spa, Washington Street, Boston, at 6:00 P.M. The following were present: Leslie Ellis, Harold Gurney, Stiles Kedy, Jeffs Beede, Steve Lyon, George Belcher, Sam Hatch, Myron Davis, and Nick Carter. Following dinner and the usual interchange of news, Myron Davis showed some fine Kodachromes taken while he was honeymooning at Bermuda last June. He also showed Kodachromes taken at Mt. Desert Island during the summer following the big fire.

I know you will be interested in the letter received from Henry Sewell: "I expect that the best way to give my regards and best wishes to all the gang is to write you. Am now enjoying (?) my long-planned winter vacation made possible by my business retirement. Clara and I left Norwell the morning of December 4 and drove through New York in a very heavy rain with first night's stop in Rahway, N.J., alongside the thundering truck route. Then through Philadelphia, Baltimore, and Washington in bright sunshine for a night stop in Fredericksburg. The third day bright sun and a night in Greensboro, N.C. The fourth morning we made a short run to Greenville, S.C., to have an afternoon and night with Clara's niece. Our next hop was a longer one through Atlanta to Opelika, Ala., with light rain late in the day. Then, with an early start, we had an even longer drive through the longleaf pine country and Mobile to a motel between Biloxi and Gulfport. Now we were getting into my old-time stamping ground. When we hit Mobile the sun was warm and the Gulf blue and placid. My only comment is that the place has filled up with too many people. From Gulfport our next stage was to Beaumont, Texas. Very much grown up from the little oil and lumber town I knew 40 years ago. By now we began to realize what a long way we had to go in approximately 300-mile stages to make Berkeley by December 20, so we gave up a stop in Houston and went to San Antonio. There we were so tired, and finding a quiet and comfortable motel, we stayed two days. San Antonio has grown like all Texas cities but has not lost its old charm. Then we started the dry-country driving, first stage to Alpine, an old cowtown, and the next to El Paso where we remained three days. Had dinner with J. Worth Maxwell and Mrs. Maxwell in their beautiful home. The second day we took a side trip to Carlsbad Caverns and did the four-hour-walk tour underground. It should not be missed by anyone going through that part of the country. The third day we visited Juarez on the Mexican side of the river.

At San Antonio we gave up pushing through to Berkeley by December 20, and arranged by wire for our daughter and her husband who live in Berkeley to meet us at 29 Palms Inn down in the Mojave Desert on December 23. We had previously planned to go down there from Berkeley for Christmas and over New Year but we had become so tired of driving that we could not take the additional 1,000 miles of drive before Christmas week.

"So from El Paso we made the stage to Tucson through very interesting desert and then we landed in the Tucson Biltmore Motel. Very comfortable, quiet, and good life. There we rested two days in the sun. A short drive to Phoenix, where I did a lot of work about 12 years ago. Now it is so grown up and bloated that one night was enough. Our next stage carried us into California to Indio where we settled into the Hayes Desert Date Palm Ranch Motel. This was excellent, right in a date palm and grapefruit grove. Bright sun, cool nights, and a fine swimming pool. From here it was only about 200 miles through Palm Springs and around the Joshua Tree Monument to 29 Palms Inn, a real desert oasis with flowing springs, separate adobe cottages, good food and a fine swimming pool. We all met the afternoon of December 23. The youngsters brought a Christmas tree and set it up in their cottage, bringing down their ornaments, and we had plenty of the necessary liquid refreshments. The desert is very interesting with a hot bright sun. Shade temperature goes up to 85, and 110 in the sun, but nights down to 40 degrees. The cottages had both oil heat and fireplaces. Late one afternoon we drove 40 miles to Salton View, a point at 5,000 feet elevation. It was clear and we could see the 125 miles to the lower end of Salton Sea. It was a gorgeous sunset and as we turned to leave there was the full moon just coming up from behind another range of desert mountains. It was unforgettable. One day we took a picnic lunch and drove through the arid Pinto Basin to Cotton Wood Springs. The springs were dry; no rain in three years. Then another day to Hidden Valley. All of this country is 2,000 feet to 3,000 feet in elevation. By the end of the week with the sun, wind, and swimming pool, we were burnt brown. The last night a dust storm blew up and it got cold and cloudy. So the morning of December 31 we started for Los Angeles.

"January 1 was a big day. We had tickets for the Rose Bowl game and saw Michigan hand a 14 to 6 beating to the University of California. My son-in-law is a University of California professor. He did the driving that day. The Bowl holds 110,000 and the traffic was out of this world. The parking is done on an 18-hole golf course alongside, but even then we walked a mile each way. There must have been 40,000 cars. It took us an hour and a half after the game to get the five miles to La Canada where we had dinner in the beautiful estate-home of Dr. Henry Eversole. The morning of January 2 we drove through Los Angeles and Hollywood on to the shore Route 101, and stayed the night at Mono Bay, a little fishing village. Then

the drive on January 3 just about finished me. Route 101, carved out of the shore mountain range, climbing at times 2,000 feet above the ocean, had 66 miles of grade and hairpin turns and most of it in a cotton wool fog. Was I glad to get to Carmel for a late lunch! We finally arrived in Berkeley at 6:30 P.M."

George Lees writes from Pottstown, Pa.: "I recently read a couple of stories in *Colliers* magazine written by Kurt Vonnegut Jr. I decided there couldn't be many Kurt Vonnegut, Jr.s, so I wrote our classmate on the subject and I have had a very nice letter from him in which he says that Kurt Vonnegut, Jr., is his son. Furthermore, he tells me that Kurt is the youngest of three children, two boys and one daughter. His oldest, Bernard '36, is with Dr. Langmuir at the General Electric Research Laboratories and contributed to the experiments in precipitating supercooled clouds. I thought you would like to have this news. Another piece of information that I can give you is that James E. Hale of our Class is the presidential nominee for 1951 of the Society of Automotive Engineers, and the nomination is usually equivalent to election." And again from George, on December 12: "I wrote you a few weeks ago that Jim Hale would be the 1951 president of the Society of Automotive Engineers. I regret to have to inform you that Jim died on November 28. I have no details. He was a vice-president of Firestone Rubber, Akron, Ohio."

The New York *Herald-Tribune* of October 12, 1950, in its column, "Business and Financial Leaders," said: "Col. Willard F. Rockwell enjoys fishing for tuna and sailfish almost as much as visiting with his nineteen grandchildren . . . will talk to any one, any time, anywhere on his favorite topic—the benefits of free enterprise. . . . The Colonel, who holds a reserve commission that dates back to World War I, should know about the free enterprise system . . . he came up the hard way . . . was graduated from M.I.T. while working for New England Telephone Co. . . . formed an engineering consulting firm shortly after graduation . . . decided to start a production business, for 'if I could tell other people what to do, I could do it myself.' . . . As chairman of Rockwell Manufacturing Co., Timken-Detroit Axle Co. and several others, he finds time, somehow, to serve as a director on the board of an imposing array of industrial concerns. . . . The Colonel is thoroughly 'sold' on the nation's ability to produce in an emergency . . . was director of production of the United States Maritime Commission during World War II . . . member of the executive committee of the Army and Navy Munitions Board and of the Requirements Committee of the War Production Board."

We are sorry to report the deaths of Julian H. H. Harwood of Fairfax, Calif., which occurred on December 21, 1949, and of Colonel Rudolf W. Riefkohl '09 of Surfside, Fla. We have the following changes of address to report: Burkett S. Clayton, 119 Maryland Avenue, Washington 19, D.C.; Ernest E. Kilburn, R.F.D. #3, Box 285, Wilmington, N.C.; Frederick W. Lyle, Box 443, Ligonier, Pa. The third

dinner meeting of the 1950-1951 season will be held Tuesday, March 13, at 6:00 P.M. Usual reply post cards will be mailed well in advance of meeting. — H. LESTON CARTER, *Secretary*, 60 Batterymarch Street, Boston 1, Mass.

• 1909 •

About two and one-half years ago, we reported that Carl Gram, X, our president, had suddenly gone to England. Later we learned that the Foster-Wheeler Company of New York had a contract to construct a large oil refinery at Fawley, England, and had employed Carl to work on the project. We received a Christmas card from Carl in which he stated that the project was nearing completion and that he expected to be in the United States along the first of February. Carl had sold his farm in Pennsylvania and says that he has no place to hang his hat. His temporary address will be 1235 Park Avenue, New York, care of Carl Gram, Jr.

For some time our good Class Secretary, Paul Wiswall, V, has complained that he did not have much "zip." After the Farrar family, with whom he lived for 25 years, moved away, Paul lost his home and became more or less depressed. In December we received a letter from his sister, Marion W. Fairbrother of Detroit, stating that in November Paul had been taken to St. Barnabas Hospital in Newark, N.J., with a stomach ulcer. Mrs. Fairbrother and her husband went to New Jersey and Paul, having improved readily, was able to go to Detroit with them. For over a year Paul's sister had been trying to get him to go to Detroit. From our last report we learned that he was in an excellent nursing home near his sister's home. We know the Class wishes Paul an early recovery. He has always worked unstintingly for the Class and the Institute, and of late has felt badly because he was unable to carry on as he has done in the past. We know that he would be more than pleased to hear from members of the Class. His address is 20216 Briarcliff Road, Detroit 21, Mich., care of his sister.

In our account of the 40th reunion, appearing in the November, 1949, Review, it is stated that the original fund contributed by the Class was restricted to scholarships, "preference being given to direct descendants of the Class of 1909." In order that this fund might be credited to the Institute Development Fund, the foregoing restriction was removed with the provision that \$500 be made available to Joan Elizabeth Clark, daughter of Horace. Joan has already been at the Institute for a year and a half and we know that the Class would be interested to hear of her present status and progress. Accordingly, Horace, I, who is in Alfred, Maine, sent us the following: "It was a pleasure to hear from you and I can assure you that Joan, Florence, and I have been most appreciative of the help that Joan received through the scholarship from the Class of 1909. Joan had wanted to go to Technology for many years and this scholarship made it possible. She is the youngest of my three daughters and by the time her turn came, wartime conditions, increased cost of edu-

cation, and the fact that only a couple of years before I started to build up a consulting practice of my own, made an M.I.T. education almost prohibitive. Joan is living at Student House and earns half her board by working on the switchboard. She has really enjoyed being at the Institute and during her first year was a cheer leader at field day and in the chorus of the Tech Show. . . . Scholastically she has done well, but is not outstanding. She had the usual problems of adjustment to the rigid requirements. This year she has her first professional course in architectural design and is thoroughly enjoying it. . . . The next time you write to Paul Wiswall, give him my best and tell him that 25 years ago I had a duodenal ulcer which I managed to cure by strict attention to diet and it has not bothered me since. My business was much better this year, which is encouraging. Florence and I are well and have been busy fixing up this old house which we bought in Alfred. We are doing it gradually and it will be a long time before we have everything in it to our liking. It is interesting, though. We hope that you, or any of the 1909 men, will stop in when you are up this way. We are about a block off Route 202, the same distance from Route 111, on a street connecting the two routes."

We have recently received a letter from Tom Spooner, VI, from the executive office of the president of the National Security Resources Board, Washington, D.C., which reads as follows: "As you probably know, I retired from Westinghouse about a year and a half ago after 40 years of continuous service with them. I spent the following year loafing on the shores of Lake Erie and Fort Lauderdale, Fla. Since last July, I have been spending considerable time here in Washington with the National Security Resources Board on conservation work. In that connection we have had some contact with the Munitions Board Cataloging Agency, particularly in an effort to obtain closer cooperation between the Cataloging Agency and industry." — We have learned that Tom Desmond, I, has been elected president of Phi Beta Kappa Associates for the year 1950-1951 and is also currently serving as one of the 24 senators of the United Chapters of Phi Beta Kappa and as president of the Phi Beta Kappa Alumni of New York. — From the Alumni Office we have received notices of the deaths of two classmates, both of which occurred some time ago. Timoteo Dar Juan, V, who came from the Philippine Islands, died on October 7, 1943. Our records show that he was with us during his junior year only and we have not heard from him since 1920 when he was with the Bureau of Science at Manila. Sherman Lougee, I, is reported as having died "several years ago." He was with us during the sophomore and junior years only. On February 18, 1947, we received notice that his address was South Coventry, Conn., so that the "several" could not have been over four years. Perhaps some members of the Class remember these two '09 men. — PAUL M. WISWALL, Secretary, 20216 Briarcliff Road, Detroit 21, Mich. CHESTER L. DAWES, Review Secretary, Pierce Hall, Harvard University, Cambridge 38, Mass. Assistant

Secretaries: MAURICE R. SCHARFF, 366 Madison Avenue, New York 17, N.Y.; GEORGE E. WALLIS, 1606 Hinman Avenue, Evanston, Ill.

• 1911 •

Naturally our 40-year reunion, June 8 through June 10, at Snow Inn, Harwichport, on Cape Cod, is uppermost in all of our minds, but let us pause for a moment of triumph as loyal M.I.T. men as we see the successful completion of the M.I.T. Development Fund's quest of \$20,000,000 — a prodigious accomplishment! We can all be proud of 1911's important part in the raising of the Fund, and now we must prepare to take our rightful place in the forefront, as a return to the yearly M.I.T. Alumni Fund approaches.

At this mid-January writing, we have the following additions to the reunion list as published in the class notes in the February issue: chances excellent for L. G. Fitzherbert, I, and his wife, for Dick Gould, XI, and C. R. Johnson, X; chances fair for Bill Warner, I, all the way from Nowata, Okla., for Ed Vose, XI, and for Ed Sisson, I, and his wife, who are Bostonians. This swells the totals to: chances excellent for 43 classmates, involving 74 people; chances fair for 52 men of '11, involving another 76 people; and poor chance of attendance for 39 classmates.

Once again, hats off to Bun Wilson, XIV, Senior Vice-president of Aluminum Company of America, Pittsburgh. He has been named "Man of the Year" by *Modern Metals* magazine, a business publication in the nonferrous metals field. According to *Modern Metals*, Mr. Wilson, "more than any other man in the light metals industry, came out of the war with foresight." When sending in his class dues, Ed Sisson, I, who owns and operates the American Architectural Iron Company, Boston, wrote that their oldest son had spent two years in the Army and was now a resident in surgery at Barnes Hospital, St. Louis. Their other two children are twins; the boy, a graduate of Brown University, and the girl, a graduate of Rhode Island School of Design, majoring in costumeing. We were sorry, however, to learn from Bill Warner's note accompanying his dues that his wife had been quite seriously ill and is not yet "out of the woods." Helen Van Tassel, widow of Ted, X, who died last year, has returned to her Beverly home, and daughter, Nancy, is with her mother. The latter's husband, Lieutenant Russ Harmon, is now in Korea with the Fifth Air Force. What a sad Christmas it must have been for Helen and Nancy, just as it was for Paul Kellogg, IX, up in Montreal, his wife also having died in 1950.

One of the interesting publications which reaches me monthly is the *Boston & Maine Railroad Magazine*, and when I recently was reading the December issue, a picture jumped up from one of the pages of a classmate I hadn't seen or heard from for lol these many years. Depicting "Our Freight Office Family at Concord, N.H.," picture number 2 was a fine one of General Agent Paul H. Pearson, II. — For the fourth consecutive year, during my annual trip to New York City

for the American Retail Association secretaries' annual convention, during the first half of the second week in January, Class President Don Stevens, II, with the capable aid of Phil Caldwell, I, Dick Gould, XI, and Harry Tisdale, V, arranged for and staged a successful luncheon at the Architectural League in my honor Wednesday noon, January 10. Although there were but 17 present, as opposed to about 20 last year, it just happened that several '11 men couldn't make it that particular day. A hospitality period preceded the lunch and I had brought with me mimeographed sheets showing the complete story of reunion returns to date, with accent on the geographical spread of those replying.

Following a talk about reunion plans and late news from M.I.T., we had an enjoyable talk-around, with Phil Caldwell acting as master of ceremonies throughout. When I told the group that Reunion Chairman Aleck Yereance, I, was anxious to have suggestions for reunion features, it was the consensus of all present that our practice of the past two or three reunions, of avoiding any set program, makes for better enjoyment by all, although Johnnie Scoville, IV, wondered if perhaps a clambake could be featured. In addition to the quartet of hard workers who arranged the event, and Scoville and me, those present were: Royal Barton, VI; G. Arthur Brown, X; Jim Campbell, I; Joe Harrington, VI; C. R. Johnson, X; Bob Morse, VI; Bart Nealey, I; Dick Ranger, VIII; Pat Russell, II; Nat Seeley, II; and Walter Welch, VI. Dick Ranger told us that he is making fine advances into television now with his Rangertone magnetic tape — notably in connection with Horace Heidt tryouts and the "Pharmacist's Mate" program. Don Stevens gave us high lights of the Alaskan trip he and Lois and their son, Carver, took this summer. I had been their guest the night before and saw the splendid colored pictures they brought back, and also renewed acquaintance with their older son, Read, M.I.T. '43, who has recently joined forces with Okonite Company.

Just as Aleck Yereance, chairman for our 40th reunion, come June, asked me to solicit "suggestions" at the 1911 luncheon in New York, so he will welcome word from any of you classmates who may have some ideas that will add to everyone's good time. Either "write to Dennie" or write directly to A. W. Yereance, Prudential Insurance Company, 80 Federal Street, Boston 10, Mass.

Here are a few address changes: Joseph Gershberg, VI, 3063 Godwin Terrace, New York 63, N.Y.; W. J. Seligman, III, Hotel Astor, New York 19, N.Y.; Francis A. Moore, II, 1201 Poplar Boulevard, Jackson, Miss.; Osborne H. Shenstone, I, 4 Harvard Drive, Lake Worth, Fla.; Arthur W. Underhill, VI, Niagara Mohawk Power Corporation, 210 Electric Building, Buffalo 3, N.Y.; and Roy D. Van Alstine, I, 3701 Cerritos Avenue, Long Beach 7, Calif.

Watch for an issue of *TheIvener* along about the middle of March, with all the latest information on the "big show" at Cape Cod, June 8 through 10, and the following Alumni Day, Monday, June 11, at

M.I.T. We'll be seeing you! — ORVILLE B. DENISON, *Secretary*, Chamber of Commerce, Gardner, Mass. JOHN A. HERLIHY, *Assistant Secretary*, 588 Riverside Avenue, Medford 55, Mass.

• 1912 •

We were fortunate enough to meet Harold and Mildred Mitchell at a party in Buffalo recently. Harold readily agreed to send us an account of his doings. His newsy letter which follows, we hope, will be an example to others to go and do likewise: "As per my promise of this afternoon, I will submit a brief summary of my activities in recent years. If I ramble too much, please feel free to cut out any of it that you wish to eliminate. Ever since leaving Technology I have been impressed by the fact that while many of my classmates in Course X stuck to their chemical engineering as a lifework, nevertheless, quite a few adopted other vocations in order to earn their livelihood. For example, Fred Barker is a banker, Harold Manning and Aksel Pedersen are patent lawyers, and doubtless others have deviated from their specialized chemical engineering background for their lifework. For my own part, I am a sales engineer — or manufacturer's agent might be a more appropriate classification — as my firm, Potter and Dugan, Inc., represents a number of manufacturers in central and western New York. My work involves many engineering recommendations, combined with sales activities. It is interesting work, requiring considerable traveling, and there are few upstate roads with which I am not well acquainted. Another enterprise in which I am engaged is Power-Drives, Inc., a firm which stocks and distributes many items in the power transmission field and other items used by our western New York industries. While I am president of this company, actually my associates do 99 per cent of the work, and the credit for the building up of business is largely due to their efforts.

"Many of my week ends are spent in the field on my hobby of ornithology, combined with photography in recent months. I am trying to get a series of 16-millimeter Kodachrome motion pictures of nature subjects, and find it difficult to obtain the quality which is so essential in such work. My three daughters are all married . . . (and) I have four grandchildren. Mildred and I now live in a house with plenty of spare room, as her mother is the only one living with us, and we hope that any classmates visiting Buffalo will make it a point to stop over with us. A cordial invitation is extended. One day last summer my old classmate from Newton, Harold Griffin, stopped in with his daughter. He was en route to Toronto, and could not stay long. However, I had the pleasure of showing his daughter the Niagara River and the Falls. Yes, they are still running! We should have a reunion here sometime. We are looking forward to next year's 40th reunion, and hope to see Course X as well represented as in 1947." — FREDERICK J. SHEPARD, JR., *Secretary*, 31 Chestnut Street, Boston 8, Mass.

LESTER M. WHITE, *Assistant Secretary*, 4520 Lewiston Road, Niagara Falls, N.Y.

• 1913 •

The following article appeared in the December 21, 1950, issue of the *Boston Traveler*, beginning on page one: "The 22-year-old New England Aircraft School oldest institution of its kind in the country, is being absorbed by Boston University as the nucleus of a new College of Industrial Engineering, the *Boston Traveler* learned today. The aircraft school, with the exception of the big building at the Boston Airport, is going to the university as a gift from Capt. Hilding N. Carlson, aircraft school president, and comprises assets and equipment worth a quarter of a million dollars. The aircraft school, with other industrial engineering components, will be set up in a new Commonwealth Avenue building and will be ready for use next fall. Capt. Carlson, one of New England aviation's foremost pioneers and an 'early bird' of the old Army Air Corps, will remain with the new college as dean. . . . The aircraft school will remain 'more or less intact' as a division of the new industrial engineering college. It has not been decided what will be done with the building at the airport, which will be retained by Carlson's company and presumably will be available for other tenants. The university later today confirmed the trustees had accepted the aircraft school. It was announced that the new college would confer bachelor of science degrees in several specialties, including electrical, mechanical and chemical technology. The aircraft school, founded by Capt. Carlson in 1928, has graduated nearly 5,000 students, sending them to all parts of the country and many parts of the world as aircraft and aircraft engine specialists. The school was the first business ever set up at the Boston Airport, and has outlived many early firms such as the old Curtiss-Wright branch, Skyways & Ames Aircraft, old landmarks at the field. Carlson's long career in aeronautics started after his graduation from M.I.T. in 1913. He remained there as an instructor, then went into the old aviation section of the Signal Corps, forerunner of the present U. S. Air Force. . . ." Last spring Hildy was looking forward to a pleasant holiday in Europe. Now it comes out how much he was entitled to time out in a busy, useful, and successful career.

Brooks Ladd, I, chief engineer at Bard-Parker Company, Danbury, Conn., writes: "No real news around here which, I suppose, comes from being with the same firm for the past 20 years. However, we are busy both with our regular surgical line and also with television rebroadcast equipment. These new assemblies are very interesting and make me wish I knew something about electricity so I could know how the Rube Goldberg devices are supposed to work. As it is, we just make the assemblies to the dimensions and let it go at that." Max Waterman, II, is vice-president of the Singer Manufacturing Company; his offices are in New York; and I am told he is a very busy man, though he'd be the last to say so. He was at

Technology last year on the Course II Visiting Committee get-together. Ed Gere, I, from La Jolla, Calif., writes: "Having just about finished the home my son and I built, I am about to sell real estate. That ought to be a good job for a retired army officer. I said we built the house; by that I mean we performed all the work — masonry, plumbing, heating, wiring and carpentry, to say nothing of the plastering and concrete finishing. Drop in and see what an old guy can do. Here's the dollar, which is about all I have left." Take particular heed to George Bakeman's, XI, letter, to the joy of class notes fans: "Life seems almost too prosaic in Richmond these past few years to offer much of real interest to old classmates of other days, but I get so much enjoyment following the news of other '13 men that I suppose I ought to at least answer 'Here.' Except for a year or so when I went back to France in 1945 on relief work, I have been assistant to the president of the Medical College of Virginia in Richmond, ever since we were chased out of Paris by the Germans in 1940. We live at Hanover Courthouse, which is right on Route 2, between Richmond and Washington, and would be delighted to see any of my old friends who might be motoring through." Fred Kennedy, IV, in Pasadena, Calif., is: "Practicing architecture, specialize in school and college buildings and churches, raise chickens on the side, and have about 7,000 hens. Two M.I.T. men, Ralph Batchelder '08 and Ken Carpenter '09, have been associated with me for some time — both good architects and swell guys." J. B. MacNeill, VI, is one of our consistent contributors. Thanks, J. B., for this: "I was in Boston on February 4 and spent some time with Professor Harold Hazen '24 of the Electrical Engineering Department, and with C. A. Powell who has joined the Institute staff as a lecturer in Electrical Engineering after an extensive business career as assistant to the vice-president of Westinghouse Electric Corporation. I learned at that time that D. C. Jackson would be 85 years old on February 13, and sent him a note of congratulations. Here's hoping that you and I will be in as good shape when age 85 rolls around." You Course I men won't be surprised to learn that brown-eyed, competent student Teddy Allen sired two scholars. He says: "Am afraid I haven't any unusual news to contribute, just the run-of-the-mill. Not in straight engineering at all, just in the financial and estimating end of a concern selling laboratory and school equipment. We install chalkboards, and you might be interested to know that about three-quarters of them are of glass, a long cry from the old Technology type. Been married 30 years and no boys to send to Technology. However, I've two of the finest daughters in the world, both now graduated with high honors at the University of Wisconsin and both Phi Beta Kappas. Looking forward to the 40th reunion." W. C. Purdy, VII, writes, from Cincinnati: "Retired (from U.S. Public Health Service) in 1941, but still dabble in laboratory work for the Service." — FREDERIC D. MURDOCK, *Secretary*, Murdock Webbing Company, Box 788, Pawtucket, R.I.

• 1914 •

It seems just the other day that a very fine young man stepped into your Secretary's office and introduced himself as a new student in Architecture at the Institute. He was Dick Ahern, son of Frank Ahern. Recently, the following note was received from Frank: "Dick received his degree from M.I.T. on October 2 in General Engineering. He is now in Graz, Austria, where he is taking graduate work in architecture."

General class news is very scarce this month, so that it seems an opportune time to make some reference to the progress made in the \$20,000,000 Development Fund Program of the Institute and its relation to the Alumni Fund. While the Development Fund total was reached, some of the gifts were for specific purposes which were greatly needed by the Institute but were not within the original program. Continual solicitation on a selected basis will be undertaken until the original objectives are obtained. Perhaps some of the Alumni Fund, as raised from year to year, will be allocated toward these objectives. The Alumni Fund, itself, which was suspended during the large campaign, will be resumed in the fall of this year. While '14 has not had a top record either in amount or percentage of contributors, it has ranked very high. It would take but a little additional effort to put '14 in one of the very top classes of the Institute. When Ross Dickson writes you next fall it is hoped that every '14 man will make a special effort to put 1914's contribution to the Fund back on a good sound basis — H. B. RICHMOND, *Secretary*, 275 Massachusetts Avenue, Cambridge 39, Mass. ROSS H. DICKSON, *Assistant Secretary*, 126 Morristown Road, Elizabeth, N.J.

• 1915 •

Good news for 1915! Gene Place has been at home since the middle of January slowly and steadily recovering. He's made a great fight and deserves all the encouragement we can send him. His home address is 304 Berkeley Street, Boston 16, Mass.

Christmas cards and holiday greetings from many, many classmates all over the country gave Fran and me a warm inner glow with a feeling for these fine old friendships. Long-distance cards were "Bonne et heureuse Année" from Ben Lassen in Paris; Avice and Hen Berg, San Francisco (has that reunion ever brought Hen back to life in the Class!); Tower Piza, inviting us to celebrate with him in New York (ever have one of his ritualistically prepared, marinated old-fashioned?); a family group picture of the Lloyd Chellmans, with Lloyd looking as young as in 1915; Ruth and Loring Hayward in Taunton, with Loring reminding us that he still has the print of the house designed for old Azel who was married in his dotage, but Loring thinks he'll build one for himself (unless he's drafted). My! My! What young ideas! Then another nomadic '15 man, Ken King, sent a map with an itinerary for Edith and himself for his trip, leaving their place at Rex Terrace, Alden, Mich., in the fall of 1950, touring to New Orleans, then to the Coast,

leaving Los Angeles on January 17 for six weeks in Hawaii, returning through the Middle West to reach "Wrecks Haven" in the spring of 1951. All the best to them on this wonderful trip.

Allen Abrams' greeting from Rothschild, Wis., was an enjoyable letter. Reliable Parry Keller leaves me mystified with his enigmatic last line. We're already married though a little late in life, to be sure! "I want to thank you and Frances for your cordial Christmas and New Year greetings. It always makes me feel good to hear from you both. In accordance with your request, I mailed to Wally Pike today all 18 of my colored reunion slides. I am leaving for Los Angeles tomorrow morning and will be away from Akron for at least 10 days. This is a business trip and I am going on very short notice. As soon as I return I must get ready for a very important and happy assignment. It is to serve as best man to my son, Parry, Jr., who is getting married on January 27 to Miriam Neely of Wooster, Ohio. The wedding will be at St. Paul's Episcopal Church, Cleveland Heights, Ohio. See what you can look ahead to some day, Azell!" Congratulations and all the best from the Class of 1915 to Parry, Jr., and his bride; a long, happy, successful married life to them! Parry and Wally Pike have arranged to make colored reprints of their reunion pictures, which will be sent to the individuals shown in each picture. Any classmate who would like these colored pictures to show in a projector for family use is welcome to have them by writing to Waldo F. Pike, 120 Tremont Street, Boston.

All this month's happy class notes end on a sad note. Tom Huff died on December 31, 1950. An aeronautical engineer and member of the Institute of Aeronautical Sciences, Tom had spent all his life in this work, beginning with his thesis, "Investigation of the Inherent Stability of the Burgess-Dunne Biplane by Means of a Power Driven Model." An active and energetic undergraduate, Tom continued a popular and generous Alumnus and livened last June's reunion with his seagoing golf costume and gay, rich humor. We'll all miss Tom, and to his widow, two sons, and two daughters at 120 Glenwood Road, Merion, Pa., go the sincere sympathies of our Class. Ed Whiting and Herb Anderson represented 1915 at Tom's funeral. Here's Ed's thoughtful letter: "I am enclosing Mrs. Huff's note of appreciation of the flowers. I am glad that Herb and I went to the funeral because I believe Mrs. Huff appreciated it. Tom worked on the endowment drive and did well. He was not in my division but I happen to know he did well and I saw him at several drive dinners. He sent his last cards and \$300 two days before he died. He was at Toms River at the time and had a heart attack. He has been very much interested in boating lately. I talked to Daland, his former partner in Huff Daland Aircraft (World War I) at the funeral. He attended Buck Dorrances' funeral with me. Hess ('11) and Captain Fulton ('17) were at the funeral. Captain Fulton was Jerome Hunsaker's ('12) executive officer during World War I. Yes, we had heard about Gene Place. Before the operation

Mrs. Place wrote of the plans although we have not heard too much since so we thank you for the news. I will write Gene. My daughter Joanne was married to a doctor the week before Christmas so we have been quite busy. I hope to see you soon and do look us up when you are in Philly!"

We need notes material and its up to you men to write me all you have been doing, are doing, and intend to do. Do not forget that the classmates make the class notes for The Review! Please help Azell — AZEL W. MACK, *Secretary*, 40 St. Paul Street, Brookline 46, Mass.

• 1916 •

All of you know by now that the 35th reunion is going to be held at the Coonamessett Inn at North Falmouth, Mass. What some of you may not know is that the Class of 1915 held their 35th reunion there, and, according to those with whom we have talked, it was the most successful and enjoyable that they have ever had. Our reunion committee is sold on this spot, and we know you will be when you see it, if you are not already familiar with it. Now for the mail. We were very pleased to receive a letter from Professor Michiya Hiraoka, in which he wrote: "I was indeed very pleased to receive your letter of November 2, requesting news of my activities. I retired from my position with the Akita Mining College five years ago, at the age of 69, and am now living in Tokyo with my son. I am still very interested in mining and my former classmates and I often meet and discuss current issues. I will be glad to tell them of your interest in their activities." Duke Haines gives us a little resumé of his past activities in his very neat handwriting. Back in the earlier years he was heating engineer with Hartford Steam Boiler — subsequently with SKF Industries as sales engineer for western Pennsylvania, and later New England. As an assistant sales manager with the Pratt and Whitney Aircraft Company, he spent one year in China and 10 months in South Africa as the company's representative. In 1941 he was loaned to the government as production engineer for plant expansions and truck production. He had a leave of absence from the government to take charge of building, equipment, and production setup for SKF Industries in connection with their 14-million-dollar plant at Lansdale, Pa. He then returned to Pratt and Whitney Aircraft as assistant to the head of Aircraft Associates in Washington. At the present time he is in the methods group of the production engineering department.

We are glad to include Merrill Pratt in the list of 1916 men who are presidents in their lines. We recently had a letter from Merrill from which we learn that, for the last several years, he has been president of the Continental Gin Company in Birmingham, manufacturers of cotton ginning and cleaning machinery, conveying, elevating and materials handling equipment. Here are some excerpts from his letter which will be of interest to many: "In my spare time I continue to lose golf games to my friends here on one or two golf

courses. We are a long distance from Boston and do not see too many M.I.T. men coming through. However, if any of you should come through Birmingham, please let me know as we will be delighted to do anything we can to make yours a pleasant stay. I am one of three citizens on the water board, which is an honorary commission to handle the water works system for the City of Birmingham. At the present time I am president of the Rotary Club of Birmingham." — Phil Baker is one who never lets us down. We recently indicated we had a little space for him and sure enough, he came through again with: "You did better than I ever was able to do. You got a nice letter from Howard Foster. Cy Guething appears well and busy, and Tred Hine is getting ready to retire from Chrysler. Carlin Harrington left Detroit, his wife said, for Baltimore. I am still dealing in Detroit land in a city that is yet growing very far and fast. I spoke recently to Eugene Barney who is working very hard as production manager of Detroit Diesel Engine Division of General Motors Corporation. This is not a news letter for you, but as soon as some interesting data appears, I shall be happy to send it on."

We like this one from Leonard Besly: "They say no news is good news. On that basis mine is all to the good." We recently had a real contribution from Bob Diemer in Buffalo in the form of 10 photographs of the 1916 dedication of the new Technology building. He writes: "Nothing new about myself to report. As you know, I spent about 18 years after graduating in technical and sales engineering. Am now in the post office department working for the government. Am enclosing a number of photographs I took at the M.I.T. new building dedication in June, 1916. Just unearthed them. You will likely find them of interest. Keep them if you want to as I have the negatives. Maybe you could show these photos to others of '16 and other classes who would find them interesting. Was very sorry to hear of Bruce Clarke's passing a year ago." Bob didn't say so, but as he has the negatives, maybe he would be able to furnish a copy of these very interesting photos to others who might wish them for scrapbooks or other purposes. Nat Warshaw wrote us this very interesting letter: "There isn't much news on 'our front' as yet, although momentarily I am expecting to be a grandfather for the first time and you probably know that it is a thrill. (Secretary's note: We had another letter from Nat a short while ago giving us the good news. A lovely little girl, nine pounds, eight and one-half ounces, Deborah Susan Warshaw, by name, on December 21. Father and grandfather are doing fine. Our hearty congratulations to you, Nat.) Incidentally, I rather miss those monthly luncheon meetings at Thompson's and imagine one or two of the other fellows feel the same way. Don't you think it would be a good idea if they would start them again? I think the system you used last year was an excellent one because unless you get a reminder you are liable to overlook it."

We received word from Bill Farthing that he had just returned from a month in Mexico and Texas. He mentioned that he

enjoyed very much several visits with Jack Camp who added very materially to the pleasures of their trip. He also told us that he caught some whopping big sailfish, and so on. We were happy to hear that Bill was able to get away for such an enjoyable trip. Jim Merritt writes us that the picture is pretty much the same as it was when he wrote us for the December, 1947, issue. He did say that he was hoping to make our 35th reunion, especially since he was not able to attend any of the previous ones. That's the kind of news we like to hear. Jack Burbank pleased us very much with this letter: "This is a rather belated reply to your letter of September 25 asking for some 'dope' for The Review. To be a little bit personal, I have released all of my civic activities except to continue as a trustee of the Good Will Boys Club here in Hartford, which is a substantially endowed organization with clubhouse facilities in the underprivileged north end of the City of Hartford. Businesswise I am still an officer of the Travelers Insurance Company, doing business at the main office in Hartford, administering the affairs of a staff of 360 engineers, and spending approximately two and one-half million dollars of the Travelers' hard-earned cash each year. With respect to family matters, my residence is still 20 Walbridge Road, West Hartford, Conn. My recent summers have been spent in the delightful small community of Blandford, Mass., which is located 12 miles west of Westfield, Mass., at an elevation of 1,500 feet above sea level. This is just one hour from my house and makes it most convenient. Blandford has a delightful community country club with a nine-hole golf club, swimming facilities at a nearby lake, and, of course, cultural facilities are available in August when the Tanglewood series open. Doubtless plans will be made for a 35th reunion in the near future. I hope it will be at Cape Cod again as in the past. As soon as the dates are agreed upon, I, for one, will reserve the dates and plan to be on hand. There is only one event which might prevent my attendance, and that is the possible marriage of my son, John, which probably will take place about that time next June. Our classmate, George Petit, is still associated with me in the Travelers Insurance Company's home office. Once in a while I see Frank Ross at the Hartford City Club where I frequently have lunch. Any classmates passing through Hartford and wishing a game of golf would find a hearty welcome from me. I am a member of the Hartford Golf Club which is only three miles from downtown Hartford. My handicap is 17 and I can arrange to lose a game to any classmate with pleasure on the hometown course." Jack sent us a second note in which he enclosed a clipping having reference to Frank Ross and which read in part: "Directors of the Factory Insurance Association on Jan. 10 elected Frank D. Ross to be president succeeding Curtis W. Pierce, who will retire March 21, the date of the association's annual meeting. In 1926, Mr. Ross joined the Eastern Factory Insurance Association as assistant manager. A year later he was appointed assistant to the president, and in 1945 was made vice-president of the national or-

ganization. Mr. Ross is president of the Wampanoag Country Club, and for many years has been prominent in New England golfing circles. He will maintain his office in Hartford."

We had a nice letter from Mark Lemon in which he acquainted us with the activities of his two sons: "I have two sons; Mark, Jr., having been a doctor at the Mayo Clinic in Rochester, Minn., up until about a month ago when he was called to active duty with the Navy, in which he is a lieutenant (J.G.) and is now attached to an Army unit at Fort Bliss, El Paso, Texas. . . . My younger son, George, is now a student of architecture at the Rice Institute, Houston, Texas. He was graduated from the Naval Academy in 1947 and spent 3 years on the Aircraft Carrier *Franklin D. Roosevelt*. He resigned from the Navy last January, at which time he came with my organization, and then entered the Rice Institute, in September. When he receives his degree in architecture about two years from now, he will be associated with me in the practice of architecture." Mark also mentioned that he hopes that he will be able to make the 35th reunion.

Leonard Best came through with this interesting letter: "Months ago you asked for news. As you can see I am in the pencil business with my brother. If I may be allowed a plug: A small efficient pencil plant with a quality line. I am president but titles don't mean too much. Family-wise, Ruth and I are leaving our children home and sailing January 19 for a couple of weeks on a Grace Line cruise. My main outside interest is public education and public schools, and Governor Driscoll recently appointed me chairman of a State Aid for Schools Commission which is busy checking into the current school aid situation. I am also on the school board in Summit, where I live between two M.I.T. men, George White '29 and Howard Spooner '22. I play bridge with the neighbors, canasta with my daughter, Beverly, and golf — well, let's skip that!" The following news items were gathered from press releases: "Harold F. Dodge of 96 Briarcliff Rd., Mountain Lakes, was presented the award of the Lakes Square Club for the 'Outstanding Citizen of the Year' at the fourth annual community party and dance Saturday night at the Mountain Lakes Club. The presentation was made by former Mayor Halsey A. Frederick, who commented on Mr. Dodge's efforts in setting up a planning board that is yet to be equalled. Former Mayor Frederick stated that, in the early days, after Mountain Lakes had become a Borough, Mr. Dodge was chairman of the mayor's committee on assessments. It was through this body that the present policy in operation pertaining to assessments and requirements for installation of utilities was adopted. This assessment policy is considered one of the most advanced in this section, he added. Mr. Dodge served the Borough for 17 years, starting his official duties on the Planning Board under former Mayor William Hansen in 1931. Mr. Dodge continued to serve the Borough until 1948, when he chose to retire from this work. The plaque, that was presented to Mr. Dodge Saturday night, was in-

scribed 'An outstanding citizen who has made a substantial contribution to the welfare of our community.' About 500 guests were present at the annual party of the Lakes Square Club."

Then there was this one: "Maurice Holland, of New York, industrial research adviser to manufacturers, foundations and universities, has been named a Fellow of the New York Academy of Sciences, it has been announced here. According to M. L. Crossley, President of the Academy, Mr. Holland was unanimously elected a Fellow of the Academy in recognition of his 'achievement in science.' Director of the National Research Council Division of Engineering and Industrial Research for many years, Mr. Holland organized the Industrial Research Institute, a nationwide organization of research administrators of large and small industries. He was elected the first Honorary Fellow of the Institute. He is also a Fellow of the American Association for Advancement of Science and Associate Fellow of the Institute for Aeronautical Sciences. Active in the promotion of scientific industrial research Mr. Holland is advisor to the Southwest Research Institute, College of Engineering of New York University and has served Armour Research Foundation, Stanford Research Institute, Midwest Research Institute, Pillsbury Mills, Anheuser-Busch, Olin Industries, Stromberg-Carlson and others. A native of Wickford, R.I., Mr. Holland was an aviator in the first world war, served the Boston Consolidated Edison Co. for a number of years as an engineer and after joining the research Council organized research missions to Europe, South America and Scandinavia. He also helped organize industrial study tours of American participation in the Third World Power Conference and World Engineering Congress." Along these same lines, Maurice sent us a very interesting article, which appeared in a recent issue of *Dun's Review*, explaining the fine points in a successful research program.

We regret to report the deaths of Joe Duggan, who died on December 20 from a heart attack; Warren A. Strangman, who died on January 6 after a long illness; E. Stanley Freed, who died on November 13 from a heart ailment; and Dan McFarland, who died June 4, the cause of which we have not been able to learn. The condolences of the Class have been sent to the bereaved. We only wish that there were something that we could do to make it easier for their loved ones during such times of great sorrow. — In closing, remember how much your letters mean to the success of this column and how much your presence at the reunion will mean to those of us who are planning to be there. — RALPH A. FLETCHER, *Secretary*, Post Office Box 71, West Chelmsford, Mass. HAROLD F. DODGE, *Assistant Secretary*, Bell Telephone Laboratories, 463 West Street, New York 14, N.Y.

• 1917 •

Our effort to increase the 50th reunion class gift have been dormant, pending the conclusion of the Committee on Financing Development campaign. We have, how-

ever, made fair progress since our last report was sent out. The following have joined the list of contributors: Chet Ames, Fritz Althouse, Ray Brooks, I. B. Crosby, Stan Hyde, Lucius Hill, Arthur Johnson, Arthur Knight, Arthur Keating, General Groves, Al Moody, John Parsons, Rene Pouchain, and Ralph Ross. Ras Senter, who was among the first contributors, and a very generous one, has made an additional generous contribution. We hope this may prick the conscience of many of you who have been procrastinating. The score is: contributors, 63; total insurance in force, \$97,000; total cash contributions, \$3,102; estimated value of fund in 1967, after deducting premiums paid by the Institute, \$74,000. We have set a minimum goal of 100 contributors and \$100,000. Thanks again to all who have contributed.

We learn from the society page in a recent issue of the Boston *Herald* that Bob Erb is spending the season at the Flamingo Hotel at Miami Beach. He and Bob, Jr., who is with him, are burning up the par records of the Florida golf courses. We regret that we failed to record the untimely death of Mrs. Erb in previous issues of the class notes. Many of you will probably recall meeting her at Wentworth-by-the-Sea on the occasion of our last reunion. — Jesse Rogers, who has been in the Ordnance Department of the regular Army since 1920, recently retired with the rank of colonel and is living in Newtonville. Upon his return he immediately pitched in to help the local Committee on Financing Development campaign. He is looking for a suitable business connection in this area.

Ed Doherty's "Willor-Wash," the soap of all soaps, is on display at all the better stores and, with its intriguing name and smart packaging, is enjoying constantly increasing sales. John Holton, who is one of the important men of Carrier Corporation, was in town recently. Al Lunn, who, as previously noted, resigned from Dewey and Almy to become vice-president in charge of production for the Kendall Company, reports that he is very happy on his new job, and we learn through the grapevine that the Kendall Company is quite happy with the new vice-president. — RAYMOND STEVENS, *Secretary*, Arthur D. Little, Inc., 30 Memorial Drive, Cambridge 42, Mass. FREDERICK BERNARD, *Assistant Secretary*, 24 Federal Street, Boston 10, Mass.

• 1918 •

News this month is short but potent. Unlike Yale, which has been called the mother of college presidents, the Institute produces few; but when 1918 does so, it produces a good one. Obviously education does not share the magnificent orderliness of the universe. There is much which is lost motion, much which starts a student off in what is, for him, the wrong direction, yet despite all this there is some which contributes to the questing minds of courageous men. Theodore Paul Wright was born in the merry month of May. He was not the first man in the Class to enter the select company between the covers of *Who's Who*, but he was among the early ones. This was done via the Galesburg,

Ill., High School, Lombard College, and the Course in Architecture at M.I.T., where he won his T as captain of the varsity track team. He's been running ever since, but not on any paths lighted by the seven lamps of architecture. What started out as an interest in houses soon matured into unusual competence in aeronautics. A decade ago this column predicted that, in the long run, Ted Wright might turn out to be the most distinguished member of our Class. That prediction still stands. Last news your scribe chronicled about the man was his appointment to the presidency of the Cornell Research Foundation in charge of the University's aeronautical laboratory. Before that he was a vice-president of Curtiss-Wright (Wilbur and Orville, not Ted). Now he is acting president of Cornell University, "far above Cayuga's waters, with its waves of blue." More power to him, especially in these times. — GRETCHEN A. PALMER, *Secretary*, The Thomas School, The Wilson Road, Rowayton, Conn.

• 1919 •

In a recent note from Blake Darling, he reports that after spending 28 years behind a desk in the fire insurance business, he is now trying out a small cattle ranch near Carson City, Nev. He invites any of his old friends and classmates to stop in and see him anytime they are out in that section. His address is: Box 450, Carson City, Nev. In the December 5 issue of the Lawrence, Mass., *Tribune* there was quite a write-up on a transcontinental bus trip to Long Beach, Calif., that was being taken by Dugald W. Campbell, who is 82 years of age and the father of our classmate. The younger Mr. Campbell is at present manager of the Long Beach Chamber of Commerce in California and vice-chairman of the Western States Chamber of Commerce, which takes in 10 states.

A recent magazine article reports that Donald Kitchin, of the Simplex Research Laboratory, Simplex Wire and Cable Company, has been reappointed as secretary of the National Conference on Electrical Insulation. The reappointment came from the National Research Council in Washington. The article also relates that in the last three years the Simplex Research Laboratory has presented five reports, compiled by Don Kitchin, for preliminary discussions. — We have received word that Barney Maloy no longer operates the Woodcraft Products Company, 2821 Olive Street, St. Louis, Mo. Until May, 1951, he can be reached at the Villa Pergola, St-Jean-Cap-Ferrat (AM), France. — EUGENE R. SMOLEY, *Secretary*, The Lummus Company, 385 Madison Avenue, New York 17, N.Y. ALAN G. RICHARDS, *Assistant Secretary*, Dewey and Almy Chemical Company, 62 Whittemore Avenue, Cambridge 40, Mass.

• 1920 •

It is a pleasure to report that Al Glassett has recently been elected president of W. J. Barney Corporation of New York. Al has always been one of our most active and able classmates as far as Class and M.I.T. affairs are concerned and it is grat-

ifying to note that his character and ability are recognized in his business also. Once again, I have a pleasant reminder that K. B. White still resides at his most interesting villa with its magnificent view of New York City's skyline, 1300 Manhattan Avenue, Union City, N.J. He also continues to maintain his home at Villa Jocelyn, Paris. This information was conveyed by his unique Christmas card. Would that other classmates kept in touch with their "aging" Secretary as consistently as K.B.

Francis Mead is chairman of a committee for the United Hospital Fund and Visiting Nurses Association of Brooklyn, N.Y. Francis is product manager of Charles Pfizer and Company, manufacturing chemists. Scot Wells' new home is at 1 Chatham Road, Newton Highlands, Mass. Art Farrington is now living in Milton, Mass., 24 Lufbery Street. John Bartholomew is in Detroit, address 18101 James Couzens Highway. Julius Wolozin is at 14 Montrose Street, Malden, Mass. — HAROLD BUGBEE, *Secretary*, 7 Dartmouth Street, Winchester, Mass.

• 1921 •

Only three months left before the grand parade begins and a large group of the Class will be on its way to an ideal vacation spot on Long Island Sound for our 30th reunion at the Sheldon House in Pine Orchard, Conn. From Friday, June 8, through Sunday, June 10, there will be many varied and enjoyable activities to keep us busy and to provide excellent opportunities for meeting everyone. The reunion committee has also meticulously provided for stupendous inactivities (probably in memory of thermodynamics and the elusive entropy) to be enjoyed on spacious verandas. Reunion Chairman Irv Jakobson has introduced a stellar new attraction in reunion fare with his invitation to all classmates having boats to steer them right up the Sound to the Sheldon House anchorage so that all of us, landlubbers and members of Course XIII, can go for a sail on the bounding main. Jake has offered aid to all 1921 mariners on moorings and charts. Address him at Jakobson Shipyard, Inc., Oyster Bay, N. Y.

In last month's mailing, you received a folder picturing the unusually varied and complete facilities for a reunion gathering at Pine Orchard. Outstanding of these features are the excellent private beach, adjoining golf course, tennis courts and nearby riding stables, a safe harbor protected by a breakwater, providing for fishing and delightful sailing among the lovely Thimble Islands in the sheltered waters of the Sound. Broad porches and sun parlors overlooking the water, formal gardens, and shady rest spots on the grounds of the Sheldon House share attractiveness with the early colonial atmosphere and furnishings, and the famous cuisine, and a competent staff which has catered for many years to the needs of numerous Technology class reunions. The pleasant recollections of our 10th reunion, held at the Sheldon House, together with its convenient location near New Haven and adequate provisions for transportation via air, land and water, were major factors

in the decision of the reunion committee to return to Pine Orchard this year. A duplicate of the reunion questionnaire form was included with last month's mailing and it is earnestly requested that you complete and return it right now, regardless of your decision on attending the reunion. Even if you haven't decided, don't delay sending to your Secretary this urgently needed information for class records and for Technology.

The third general broadcast on the reunion is, or very shortly will be, in your hands with a more detailed program and the all-important reservation card for you to mail back immediately to make certain of accommodations in June. As now planned, we will gather for cocktails on Friday and a general get-together at dinner that evening. Following the day's activities there will be a class banquet on Saturday evening. Late Sunday afternoon, those who wish will leave for Cambridge to join in the Alumni Day celebration at Technology on Monday, June 11, and our class meeting at the Copley on Monday afternoon just before the alumni banquet. Transportation from Pine Orchard to Cambridge will be arranged for those who request it.

Added to the names listed in the last three issues of *The Review*, Harold Bixby of the Virgin Islands, Moose LeFevre of New York, Phil Payson of Cleveland, Bill Sherry of Tulsa, Okla., and Al Wechsler of Brookline, Mass., bring the total of tentative reunion attenders to 92 at this writing, and Vic Hassold of Philadelphia has just written that he, like a good many others, is still in the process of deciding. Bix, who retired from the Signal Corps with the rank of colonel and 25 years of service, is now a consulting engineer on communication systems. He and Mrs. Bixby maintain their home in St. Thomas, Virgin Islands, and Bix has recently done considerable traveling to Washington and overseas. The Bixby's son and daughter, respectively a sergeant of Marines and a Wac during World War II, are now married and each has a two-year-old daughter. An ardent yachting enthusiast for many years, Bix may want to consider using the water route to the mooring area in front of the Sheldon House. Should the yacht *Ariel* appear in Pine Orchard waters, look for Skipper Freddy Adams, who is director of research of the Spool Cotton Company, New York. Fred is a member of the Pequot Yacht Club and many professional societies. Son Fred, Jr., was graduated from Technology in January, 1950, and Noel is at Oberlin.

G. Howard LeFevre is manager of metal sales of the United States Smelting Refining and Mining Company, New York City. Still single, he makes his home in Larchmont, N.Y. Philip R. Payson is district manager of ball and roller bearing sales for SKF Industries, Inc., with headquarters in Cleveland, Ohio. He is looking forward to indulging in his principal recreations of fishing and golf at Pine Orchard. He and Mrs. Payson have two daughters. Beverly attended Ohio State and the University of New Hampshire. Audrey is a student at Bowling Green. Another golfer and fisherman is oil producer William J. Sherry, President of the Sherry Pe-

troleum Company, now housed in new offices at 1001 First National Building, Tulsa, Okla. An active supporter of Institute and class affairs, it is remarkable how Bill can direct numerous community, philanthropic, and business activities in addition to lavishing so much attention on a fine devoted family of six girls and two boys. A director of the Oklahoma Expenditure Council and also of the Notre Dame Alumni Association, Bill is a member of the American Petroleum Institute, the American Institute of Mechanical Engineers, the Independent Petroleum Association of America, and the American Association of Petroleum Geologists. He is one of two Republican members of the Tulsa Utility Board, Oklahoma chairman of the Arthritis and Rheumatism Foundation, Honorary Secretary of M.I.T., and regional chairman of the Committee on Financing Development of M.I.T.

Miles M. Zoller is vice-president and general manager of the pigment division and a director of Eagle-Picher Sales Company, Cincinnati, Ohio. He reports seeing Dick Windisch, Bob Dolle, Ollie Bardes and Trev Peirce at recent M.I.T. Development Program meetings. Miles is a member of numerous trade associations for which he has prepared a number of papers and addresses. He is a deacon of Walnut Hills Christian Church and says his main recreation is golf. He and Mrs. Zoller have four sons and two grandsons, children of the second son, James, a graduate of the University of Miami. The eldest son, Miles, Jr., was graduated from the University of Cincinnati, Albert is in high school, and Sanford is in grade school. Albert H. Wechsler is vice-president and general manager of the Converse Rubber Company, Malden, Mass., and a director of the Hodgman Rubber Company. Also a director of Beth Israel Hospital and the Association of Jewish Philanthropies, he depends on fishing and his skill as a silversmith for diversion. The Wechslers have three children: Jean, who was graduated from Vassar in 1947; Anne, Vassar, 1951; and Joel at Milton.

Robert R. Neyland certainly must have enjoyed a real celebration of his 25th year of coaching the University of Tennessee "Vols" when his team whipped Texas at the Cotton Bowl game on New Year's day with a touchdown in the last three minutes of play. For the statistically minded, the 25 years were not consecutive, since Bob spent five years as a brigadier general during World War II and has earned the Distinguished Service Medal, the Legion of Merit, and the rank of Officer of the Order of the British Empire. Palmer Scott and Company, New Bedford, Mass., shipbuilders, exhibited completely equipped plastic cruisers at the New York motorboat show, causing the *Newark News* to remark, in part: "For years, the methods used by Noah when he took his fling at shipbuilding were the basic ones of boat building and it has been only since World War II that the plastic age has made inroads on the ancient trade. Palmer Scott has on display a 22-foot day boat of molded fiberglass. Color is impregnated in the topsides and the bottom is covered with conventional anti-fouling paint. The hull is one piece up to the gunwale and a

choice of three deck and cabin arrangements is offered, ranging from an open bass boat to a complete cruiser. Prices were slightly under those for a comparable boat of conventional construction." Hope Palmer can arrange to bring a late design to Pine Orchard for a practical demonstration!

Arthur N. Brambach of our secretarial committee on the West Coast and commercial manager of the International Business Machines Corporation in that area, has advised a new home address at 1305 Marlborough Road, San Mateo, Calif. New addresses have also been received for Winfred L. Foss, James LeGrand, and Harry M. Witherow. Joseph W. Gartland, research engineer on carbon and graphite for the national carbon division, Union Carbide and Carbon Corporation, Cleveland, has a new home at 1245 Bunts Road, Lakewood 7, Ohio. He writes that both he and Bill Loesch plan to attend the reunion. Joe and Mrs. Gartland have one son, Peter, who is a member of the class of 1953 at Dartmouth. Author of "A High Temperature Electric Tube Furnace," presented before the Electrochemical Society, Joe is a former chairman of the Cleveland section and also holds membership in the American Chemical Society and the American Petroleum Institute. Willard J. Loesch is manager of production, Forbes Finishes Division, Pittsburgh Plate Glass Company, Cleveland. He and Mrs. Loesch have a son and a daughter. Robert attended M.I.T. and will be graduated from Annapolis next June. Norma is in the class of 1953 at Middlebury.

We saw Maxwell and Ethel Burckett with their daughter, Phyllis, and also Joe Wenick at the recent Thomas Alva Edison Foundation lecture given by Dr. Compton in Newark. Lawrence B. Richardson, a retired rear admiral and now chief engineer of the Fairchild Engine and Airplane Company, Hagerstown, Md., has been elected president of the Institute for the Aeronautical Sciences. Patrick H. Timothy, Jr., a retired brigadier general and former chief engineer of General Bradley's 12th Army Group during World War II, was the guest speaker at a recent meeting of the Society of American Military Engineers in Mobile, Ala. A resident of Birmingham, he received his degree with us in Course I after his graduation from West Point in 1918. Later he was an instructor at West Point for four years. He has won the Distinguished Service Medal, the Legion of Merit, and the Bronze Star. Joseph Wenick is factory manager of Lightolier, Inc., Jersey City, N.J., and makes his home in Caldwell. He is a member of the American Electroplaters Society, the Society for the Advancement of Management, the West Essex Philatelic Society, the Caldwell Citizens Advisory Committee, vice-chairman of the Caldwell Board of Education and member at large of the Adult School of Education. He and Mrs. Wenick have two sons: Richard, who is attending the University of Cincinnati, and Martin in grade school.

Richard W. Smith, assistant manager, National Resources Department of the Chamber of Commerce of the United States, Washington, D.C., writes that he

frequently has lunch with Captain Elliott B. Roberts of the U.S. Coast and Geodetic Survey. Dick is a member of the American Institute of Mining and Metallurgical Engineers, the Geological Society of America, Georgia Mineral Society, Potomac Appalachian Trail Club, Wilderness Society, and the National Parks Association. The Smith's daughter, Ann, is at Stockbridge School, Stockbridge, Mass., and Philip is in high school. George Schnitzler of Brookline, Mass., is an electrical engineer for the National Bureau of Standards, engaged in the testing and inspection of incandescent and fluorescent lamps and is the author of an article on the subject, published in 1946. He and Mrs. Schnitzler have one daughter, Laura, in high school. George is a member of the M.I.T. Stein Club and the American Institute of Electrical Engineers. Fred M. Rowell is vice-president and general manager of the Cape and Vineyard Electric Company, Hyannis, Mass., as well as vice-president of the Plymouth County Electric Company, the Plymouth Gas Light Company, and the Plymouth Five Cents Savings Bank. He is active in numerous community and philanthropic affairs in Plymouth when he isn't indulging in golf or sailing. Son Bartlett was graduated from Cornell in 1949 and daughter Lydia is married. Fred says he frequently sees Harty Flemming. We hope he will bring his boat to Pine Orchard and join Cap'n Jakobson's regatta. J. Trevor Peirce, vice-president of Peirce-Phelps, Inc., Philadelphia wholesalers of appliances and television equipment, is another yachtsman we would like to see with the 1921 fleet in June. Trev is a member of the Mantoloking Yacht Club and does a lot of big game fishing. Also a member of the Union League and the Mayflower Society, he and Mrs. Peirce have three sons and a daughter. Trevor, Jr., Everett, and Neal are, respectively, Princeton '46, '49 and '54. Jeanette will be graduated from Bennington next June. Herbert K. Nock, sales manager, smithcraft lighting division, A. L. Smith Iron Company, Chelsea, Mass., writes that he occasionally sees John Scott, who is with General Electric in Schenectady.

Last month's installment ended with the Ralph M. Shaw family on their way to Milan. Rufe continues: "At Milan, there is only one thing of note, the cathedral, which is a most unusual structure, artistry personified. The whole thing is plastered with statues and the Italians are replacing those which were removed for security during the war. The rest of Milan is a manufacturing town, rich in communists, but otherwise a second Baltimore or Pittsburgh. We next went to Como and stayed on the shore of Lake Como at the Villa d'Est. This is a lovely hotel, populated by all the nationalities that have enough free money to leave their respective countries. Italy is no longer a monarchy but the nobility is still on deck, mostly at the Villa d'Est. Next to Lugano, Stresa and Chamonix. We entrained at Stresa and went through the Simplon Tunnel on the Oriental Express. At Martigny, we transferred to the narrow gauge, an interurban type electric line. Switzerland has only electric railroads. Immediately we picked

up a rack and became a cog-wheel railroad. Think of a commercial railroad using a cog! The grade was about 15 per cent and I concluded that we did not have a corner on engineering. Chamonix is a lovely spot. The chief thing of note besides 15,780-foot Mt. Blanc, is the Mer de Glace, a renowned glacier. Another noteworthy project is a cable railway, called the "Teleferique." It is built like a transmission line and the basket travels along the wire. They haul you up a mountain inside opposite Mt. Blanc and have another teleferique at the top across a canyon that may be 1,000, 5,000 or 10,000 feet deep. The span is about two miles and the basket holds 20 passengers. I found myself watching the cable instead of the scenery! The view from the top is supreme. Mt. Blanc is right opposite, like a big piece of frosted cake. The rest of the range tapers off and is less, in height, than our own Sierras. The glaciers and snow have shrunk since my last visit in 1910, and I think Mt. Rainier in our own Cascades is more beautiful than Mt. Blanc. We motored to Geneva, a beautiful town. The bus driver hid baggage under the bus except for two worn and almost empty bags which he put on top. At customs, he tossed the two bags down for inspection, winking at us. There was no duty to pay, and he collected 350 francs from each passenger as a thank offering." (Continued next month.)

When you check the golf clubs, the tackle, or the boat, to ready them for the reunion, remember to get that reservation back promptly. Also please return the questionnaire, whether you will attend in June or not. — CAROLE A. CLARKE, Secretary, International Standard Trading Corporation, 67 Broad Street, New York 4, N.Y.

• 1923 •

In the December, 1950, notes I quoted a letter from R. V. Burns who described some work he has been doing in Haiti for a New York consulting firm with which he is associated. The Haiti project aimed to control floods by building a storage dam on the Artibonite River to impound winter rains and release water for power generation and irrigation during the growing season. In a Christmas note, Bob reports that he and his wife, Lillian, are going to Haiti for further work on the project, along about February or March. Doc Smith sent me a note from Cleveland saying that he was having dinner with Herbert L. Hayden, who was in town in January for the Plant Maintenance convention. Herb is plant engineer at the Arlington, N.J., Du Pont plant. Doc also sent me a clipping about Henri P. Junod. This contained an announcement that Pickands Mather and Company announced the first of the year that Junod would be one of two new partners in the firm. Junod has been with this firm since 1923 and, after practical experience in blast furnace and coke oven jobs, became manager of coke sales in Chicago. In 1943 he was transferred to the coal department at the Cleveland headquarters of the firm.

A clipping from the Holyoke, Mass., Transcript-Telegram of December 21,

1950, records that James V. O'Connor has resigned as chief of the Federal Power Commission's division of gas certificates to enter private practice. O'Connor is a native of Holyoke and was associated with the Brooklyn Edison Company and the American Gas Association before joining the Federal Power Commission in 1935. — Frederick D. Shaw, Vice-president of the Bettinger Enamel Corporation of Waltham, was appointed a trustee of the Watertown Savings Bank in December. It was announced at the Lynn River Works of General Electric in December that R. C. Robin, formerly of Schenectady, had been appointed to the staff of the manager of the aircraft gas turbine divisions of the Lynn River Works. He has been with General Electric at Lynn and Schenectady since graduation. I have a card reporting that Mr. and Mrs. Robert Waldo Fox announced the marriage of their daughter Marilyn Roberta to Jacob Adam Gleber on January 13 at Forest Hills, N.Y. Waldo and his wife are currently living at Fort Smith, Ark.

I regret having two deaths to report this month: One regarding the death of George J. Cutler of Boston, formerly with the Boston Edison Company, on November 24, 1939; and the other, the death of William C. Hahn, graduate of Course VI, who had been living at Scotia, N.Y., on September 11, 1949.

Members of the Class who can get back to Boston in June should keep in mind that there will be the now customary annual meeting of the Class on Alumni Day. — HORATIO BOND, *Secretary*, National Fire Protection Association, 60 Battery-march Street, Boston 10, Mass. HOWARD F. RUSSELL, *Assistant Secretary*, Improved Risk Mutuals, South Broadway, White Plains, N.Y.

• 1924 •

As promised, a report on our Caribbean classmates, a personal report from our newest addition to the growing list of traveling secretaries, Ray Lehrer.

In the first place, Mike Amezaga wasn't kidding when he told us at the reunion how hard he was working. Some of us, you may remember, asked him about those long siestas and early quitting hours we'd read about. Mike's in his office at about 8:00 A.M. every morning and usually manages to get home again by 7:00 P.M. in the evening, with luck. Air conditioning is his biggest business right now. You can understand how it would be when you realize that about Christmastime, when Florida was shivering with 36-degree temperatures, it was so cold in Havana that Ray had to change to a medium-weight suit to be comfortable! In the garden of Mike's modern home, in Havana's finest suburb, everything was in full bloom. Tony Rosado lives right nearby. He's still having his business and labor troubles, the same ones that kept him away from reunion. Last fall Mike did have a vacation. Took his wife and two beautiful daughters (Ray stressed that "beautiful") to Europe, and for better than three months they drove all over the continent.

About 3:00 A.M. on New Year's Day,

while your Secretary was just finishing up a rousing game of canasta, Ray was sitting down to a sumptuous repast at Luis Ferre's home in Ponce, Puerto Rico. It was a gala night, from all accounts. He kept his promise and all kinds of toasts were drunk to '24, to M.I.T. — and just about everyone else, it seems. Sounds like a very memorable occasion. Luis had also taken his family abroad this summer. He and Mike were touring some of the same country at the same time, but only discovered it after the fact. They used to get together better than that. Some of you may remember, as undergraduates, hearing these two beating it out on the piano at Cosmopolitan Club meetings. Two of Luis' three brothers are also M.I.T. men. They are all together in operating the family enterprises, and you no doubt noted in our 25-year report that these are many and varied. The latest additions were recently bought from the government: a cement plant (they now make all the cement in Puerto Rico), a paper mill, a glass plant, and a ceramics business. Rather sounds as though Luis had no problem about taking care of his spare time. Al Roig was in Miami at the time, so we can't give you a first-hand report on his fishing fortunes. Those of you who were at our big cocktail party at the Statler will remember that the charming Mrs. Roig is Luis Ferre's sister.

So much for the land of perpetual sunshine. It's quite a shock to bring our thoughts back to these frigid climes. But we do have an item of some importance. Foster Perry, for the last 10 years vice-president in charge of manufacturer's sales for American Bosch in Springfield, was named executive vice-president in December. Our congratulations. — HENRY B. KANE, *General Secretary*, Room 1-272, M.I.T., Cambridge 39, Mass.

• 1925 •

Our good friend, Obie Denison, Class of 1911, has supplied me with a very interesting article taken from the Worcester *Telegram* concerning Max Levine, II. This article endeavors to give both Max and the City of Worcester a good boost. Max is our primary interest, and the article indicates that he operates the Webster Spring Company, fabricators of wire springs and other wire products. This business was set up by Max promptly after graduation, and his present plant in Webster, Mass., was opened in 1939 and now employs about 150 people. In June, 1950, he received an Army Ordnance contract for 10,000,000 retainer rings to be used in Army shell containers. The shells are shipped overseas in air-tight and water-tight metal containers. These retainer rings form the seal of the containers, so that when the shells are deposited on overseas beachheads they are protected from sand, water, and corrosive elements. The retainer rings must meet rigid size specifications. Max' facilities at Webster were occupied with other production, so he found it necessary to set up a new plant in the old North Works of the American Steel and Wire Company in Worcester. In this new plant he is turning out 50,000 of these retainer rings a day, and plans to

expand his production facilities as soon as more floor space is available.

I am sorry to report the death of Edward C. O'Brien, VI, who died December 10, at Lenox Hill Hospital in New York City. Ed was vice-president of J. J. O'Brien and Son, a printing and stationery business located at 123 East 23d Street, New York City. He was also vice-president of the Shoreham Club in Old Greenwich, Conn. He is survived by his wife, Mrs. Gladys Cavanaugh O'Brien, and three sons, D. Rea, G. Frank, and Edward C. O'Brien, Jr.

Another news item of interest indicates that George E. Mason, II, of Worcester, has been appointed sales manager of the Russell-Harrington Cutlery Company. Prior to World War II, George held the position of sales manager of the Multibestos Brake Lining Company. During the war he was a colonel with the Army for four years. During that time he served as the chief of industrial division of the St. Louis, Mo., ordnance district, which comprises eight surrounding states. Since being discharged from the service, he has been connected with sales management at Curtiss-Wright of Indianapolis and Graton and Knight Company of Worcester. A final item clipped from the Westfield, N.J., *Leader* reaches me from Nelson Malone via Hollis Ware. This item is concerned with Dick Tryon's, II, son, Richard, Jr., who was wounded August 17 with the Marine First Division on "No Man's Hill" in Korea. Dick, Jr., was the first Korean casualty from Westfield, N.J., and, as far as we have been able to learn, has made a satisfactory recovery. — F. LEROY FOSTER, *Secretary*, Room 5-105, M.I.T., Cambridge 39, Mass.

• 1926 •

This month we are not writing the notes from Pigeon Cove but are once again resorting to the dictaphone system. Let's take a look first at the clippings, of which there are not many. Here's one about Sumner Gruzen taken from the Newark *News*. Sumner has designed a new high school building for Passaic, N.J., which recently won first prize for merit in design in educational buildings at the annual convention of New York State architects. An innovation in this building is that one wall in every classroom is to be glass. Congratulations, Sumner, for this new honor added to the many others you have received in the past. Incidentally, the article also states that our distinguished classmate lives in Maplewood, N.J., with his wife and two sons.

The other morning when I was coming through the North Station, I was astonished to see Charlie Rich staring into one of the exhibit windows. After surprising him from behind, we had a short chat and I learned that he had been given one of the exhibit windows in which to display his limestone business. Passing through the station later on, I noticed that Charlie had filled the window with a very nice display and that there was a large crowd admiring it. We have word from Gardner, Mass., that Roger Smith has been re-elected vice-chairman of the school committee in that city. Not long ago, I met Dan Bloomberg's brother in Gloucester

and learned that Dan has been elected to the board of directors of Republic Pictures in Hollywood. Bill Edwards has sent us his annual greeting in the form of a four-page presentation outlining the advantages of his perpetual calendar. Bill is still located in Honolulu, and from reading his brochure it is most evident he has lost no interest whatsoever in his favorite project.

Lawrence Randall has written us from Akron, Ohio, asking for details about our coming reunion. Lawrence is with Good-year Tire and Rubber Company in their airplane tire division, having joined this organization immediately after graduation. By the time these notes get into print I expect you will have received your reunion notices. Nonetheless, I will answer Lawrence's questions for the benefit of all. The reunion will be held at the Hotel Griswold in New London, on June 9 and 10. That is Saturday and Sunday, and on Monday we will return to the Institute for our Alumni Day, finishing with the Alumni Banquet that evening. I'll not go into further detail about the reunion because I don't want to take any steam away from the committee, but you can rest assured that no stone will be left unturned to make it a bang-up affair. Lawrence has asked one question which I hesitate to answer. At any rate, I deny personally having had anything to do with making the affair stag, but that is what it is going to be. I know that there were many reasons for arriving at this decision, not the least being that of finding a resort hotel large enough to take care of us at this time of year. We do hope, however, that all of our Alumnae will show up for Alumni Day, June 11.

Nat Gada phoned the other day to advise that he had been transferred to the Boston office of General Electric Supply Company and is living in Wellesley. Welcome to beantown, Nat! — Cheerio, until April. — GEORGE WARREN SMITH, *General Secretary*, E. I. du Pont de Nemours and Company, Inc., Room 1420, 140 Federal Street, Boston, Mass.

• 1927 •

I regret to record that Wheaton H. Hutchison died suddenly of a heart attack on December 14. He is survived by his wife and by his daughter who is 15 years old. Hutch was with the dyestuff division of E. I. du Pont de Nemours and lived in Providence, R.I. His death will surely be regretted by his many friends.

After working with General Electric in Schenectady, McKinsey and Company, marketing consultants in New York, and the Towle Manufacturing Company of Newburyport, where he was vice-president in marketing, Howard Woods has been named general sales manager for Swank, Inc., manufacturers of men's jewelry. Woods is married and the father of two sons and a daughter. — JOSEPH S. HARRIS, *General Secretary*, Shell Oil Company, 50 West 50th Street, New York 20, N.Y.

• 1934 •

It is with deep regret that we note the passing of Arthur B. Ellenwood, Jr., of

Milton, Mass. He died on December 1 of this past year.

Lyman H. Allen, Jr., who was formerly assistant chief design engineer in charge of chemical process design with the American Viscose Corporation in Philadelphia, Pa., has been appointed chief engineer of Foster D. Snell, Inc., New York firm of chemical and engineering consultants. He will be in charge of the Snell engineering division, supervising the design and construction of spray dryers, pilot plant operations, plant inspections, by-product utilization, and other engineering services. Lyman is now living in Mountain Lakes, N.J. R. C. Gunness, who is manager of research of the Standard Oil Company of Indiana, was chosen one of four new directors for the American Institute of Chemical Engineers at its 43rd annual meeting in Columbus, Ohio. He served several years as assistant professor of chemical engineering at the Institute and in 1938 went with Standard Oil as a group leader. He was assistant director of research in 1943, associate director of research in 1945, and, in 1947, was promoted to his present position. He has done original work in distillation and heat transfer and has had many publications in this field.

G. Roy Fugal recently received his Ph.D. degree from Yale University. Roy is manager of personnel at the General Electric Company in Bridgeport, Conn. Paul Nichols has been appointed recently as manager of the manufacturing division of General Electric's Lockland plant. He went with General Electric in 1936, and was named assistant production manager of the aircraft gas turbines divisions in 1947. He was transferred to the Lockland plant two years ago as production manager, and is living at 7407 Juler Avenue, Madeira, Ohio. Robert K. Roulston, our class agent, is engaged to Barbara A. Smith, daughter of Mr. and Mrs. Harold Atwater Smith of Winchester. Miss Smith graduated from Mt. Holyoke in 1948. Bob is now working with Air King Radio Corporation in Brooklyn as assistant to the president. Charles F. Hill was married on December 15 to Christine Whitlock. Mrs. Hill was born in Vienna, studied in London and Paris, and is editor of the Canadian music magazine *Prelude*. Charles is president of the Carrier Corporation of Canada. The couple will live in Toronto. — JOHN G. CALLAN, *General Secretary*, 184 Ames Street, Sharon, Mass. ROBERT C. BECKER, *Assistant Secretary*, Chile Exploration Company, Chuquicamata, Chile, S.A.

• 1936 •

We'll start out these notes with a word from your reunion chairman, Fletch Thornton, and chairman of the publicity committee, El Koontz. Their message is as follows: "By the time these lines force their way into your living room, most of you will have sent Mal Holcombe a statement of your plans for attending the 15th reunion, and we hope a goodly number of checks went along with the questionnaires. If your copy hasn't gone in, or if it has been misplaced, please let us know right away: when you plan to arrive,

whether you will be alone or bring someone with you, and how long you will stay. Everyone who asked for future mailings, and all who made reservations, will shortly receive a more complete outline of plans and a folder on the reunion hotel. If this, plus the program of events and the list of reservations, doesn't make you anxious for June 8 to come up in a hurry, you must be a very patient fellow, indeed. More than 100 of us indicated before Christmas that we had definite plans, or were trying to make plans, to show up at headquarters for the big week end. It is not surprising that there is so much interest; for, in the very bad year of 1946, with all the difficulties of travel, and so on, we still had 90 members of the Class, including the wives of several, at the alumni dinner for our 10th reunion. This time, with wives invited, in fact, welcomed, and urged to come, we'll probably see some fellows who never could get away from home for the 5th and 10th, in addition to the spirited regulars who wouldn't miss one of these shindigs even if it were held in Alaska. So now is the time for action. Decide yourself to come and make your reservation. Then write, phone, or see the fellows you hope will be there too, and let them know they can count on you. Make up a car pool, or charter an airplane, but round up the gang and get going!" Both Fletch and El asked me to be sure to thank all of you who have so unhesitatingly offered your assistance; and, of course, your Secretary-Treasurer appreciates your efforts, too.

Received a post card from Ben Cooperstein saying he is looking forward to our 15th reunion and indicating his willingness to serve on the publicity subcommittee. Thanks, Ben! Ralph Johnson writes that he has moved from Arlington, Va., to 111 Palace Street, Plaza del Key, Calif. He is afraid he will not be able to make the reunion. Too bad, Ralph, we'll all miss you. Even though Al Horton lives in San Francisco now, he reports that he would "give his all" to attend the 15th reunion, and will be there if at all possible. A. Michel Tremaglio writes from Waterbury, Conn., that construction engineering and sales promotion of building materials in the State of Connecticut take up most of his time — also that he is looking forward to the 15th reunion. Mike Lach reports that for the past several years he has been with Eastern Gas and Fuel Associates, located in Boston, Mass., in the research and technical department. Prior to this, he spent some time with American Cyanamid Company in New York City; four years in the Army, and, prior to that, with the du Pont Company at Belle, West Va.

It is the sad duty of your Secretary to report the following, taken from *The Bent of Tau Beta Pi*, December, 1950, issue: "Everett, Edward F., Massachusetts Beta '36 — Chemical engineer with Houdry Process Corp., Philadelphia, died May 24." Mike Lach had read a short news account about Ed's death in the *Oil Gas Journal*, and said he had not seen any details subsequent to this news item. Sorry, Mike, we have no further details either. Bill Canning is with the Benrus Watch Company, Waterbury, Conn., in the ca-

capacity of development and project engineer. He is married and has a three-year-old son. That's all for this time, with the exception of saying, "Be sure to get your questionnaires and checks in the mail as promptly as possible." — **ROBERT E. WORDEN**, *Secretary-Treasurer*, Fidelity-Philadelphia Trust Building, Philadelphia 9, Pa.

• 1938 •

We note that Lou Bachmann, Vice-president of Bachmann Uxbridge Worsted Corporation, was married to Gloria Kelly on October 26. Congratulations are also in order to the William Burditts, Bill and the former Esther Grace Tipping were married on December 9. Bill is now at Brookhaven National Laboratories in Upton, Long Island. On the future-graduate score: Dave Acker now has his fourth child, a son born October 31, and Lou Bruneau reports that Ed Hadley had his fifth, Peter, in August. He also reports a new son for Dave Wright. He notes that J. J. Phillips is currently at Harvard Business School.

We regretfully announce the death of Ken Keyes. We are grateful to his brother, Ray '40, who writes: "I do not believe my brother Kenneth, a Course VIII graduate of '38, was much of a correspondent, and I am sorry these words from me must announce his death on October 5, 1950, at Oak Ridge, Tenn. He died of complications due to Addison's disease. After receiving his B.S. at Technology in 1938, he went to Carnegie Tech, where he earned his master's degree in 1939. He continued to teach there, while working for his doctor's degree, but the war interfered, and he returned to M.I.T. to work in the Radiation Lab for the duration. It was during this time that he was stricken with Addison's disease, which slowed him up. However he did return to Carnegie, where he finally completed the work and got his doctorate in June of 1949. He was working at the Oak Ridge National Laboratory, when he passed away. He is survived by his wife, the former Anne Lee Hersperger of Pittsburgh. The doctors, who specialize in Addison's disease, say that it was remarkable the way Ken carried on after being stricken. He did more physical work than any other victim of the disease that they know. Realizing this, the attainment of a doctor's degree is a fine tribute to his courage and his will never to give up. Probably the way he wanted it, and the way we are glad it happened, since it had to, he died practically standing on his feet. I do not know for sure, but Ken must have realized that he had a short time to live. He never let my mother or my brother and I know this. Therefore his passing came rather suddenly to us. However since we have learned that death from the disease can be painful and prolonged, we are glad that his quick passing spared him further suffering. He knew that he could have prolonged his life by convalescing, and letting others wait on him. But he would not have it that way. The disease handicapped him in finding work. Friends helped him secure the position at Oak Ridge, and it was there that he finally found happiness in his profession and his association with many friends."

For current addresses we find Tenny Clough is with Keller Engineering Associates, makers of molded plywood products in Manchester, N.H. Haskell Gordon is now president of Elwood Adams Company in Worcester, Mass., a hardware and mills supply company which he just bought into this summer. Haskell has two children now, a boy, four, and a girl, six. Fred Strassner, who is now on the program committee of the New Jersey Club, writes that he is selling and engineering transformers in the New Jersey area as a manufacturer's representative for medium-sized plants. He reports that Chet Williams '39 is now in Roselle, N.J. (331 West Third Avenue), working for Singer in Elizabeth and is also chairman of the phone contact committee of the M.I.T. Club of Northern New Jersey. Don Ritchie is associated with his father in the firm Ritchie and Associates, Boston architects and engineers. Nick Barbarossa, hydraulic engineer for the Omaha district of the Corps of Engineers, is instructor in a new evening course in fluid mechanics at the University of Omaha. Dick Muther writes: "Have covered lots of ground this year with consulting work as far away as San Francisco and Sweden. Have recently been appointed engineering supervisor, as well as having a training director's job, at Methods Engineering Council." Willard Roper, now a lieutenant colonel, Corps of Engineers, in Nebraska City, Neb., was a student last year at the Army's Command and General Staff College. He writes: "At present, I am in the process of learning something about flood control and the Missouri River in the hope that I shall be able to carry out my newly acquired responsibilities in connection therewith. . . ." We also find Herb Mansfield, a lieutenant colonel from Seattle, has been named deputy chief of the transportation section, Japan Logistical Command, with headquarters in Yokohama.

Clark Robinson, who was mentioned in the December notes, writes, "It is three months to the day since I broke my right leg by jumping from a ladder when confronted by a group of angry hornets. I spent six weeks on my back with the leg supported by a complicated system of weights and pulleys. Since then I have had a hip-high plaster cast, and have been able to get back on the job. The bone has been growing 'under forced draft' and the cast will come off in two weeks. All I can say about my work is that the experiments are still in progress. Several of us here are studying mesons, using the University of Illinois 340-m.e.v. betatron."

The latest directory of the Alumni Association indicates that our Class is well represented. On the Alumni Council, which meets in Cambridge monthly, Don Severance is secretary and treasurer, Al Wilson is our class representative and Dave Acker, Jack Bethel, and Bob Johnson are also members. Dave Wright in New York and Frank Knight in Bangor, Maine, are Honorary Secretaries, in which capacity they interview and assist prospective students, and in other ways co-operate with M.I.T. Several '38 men are officers of M.I.T. clubs: Frank Knight, Secretary-Treasurer, M.I.T. Club of East-

ern and Northern Maine; Arthur Gould, Treasurer, the M.I.T. Club of the Lehigh Valley; Kantilal H. Shah, Secretary, the M.I.T. Alumni Association of India; C. J. Harrington, Vice-president, M.I.T. Club of Great Britain; Armand L. Bruneau, Jr., Treasurer, the M.I.T. Club of New York; Frederick J. Kolb, Jr., Secretary, M.I.T. Club of Rochester; Harold J. McGillivray, M.I.T. Club of Central Florida. — **ALBERT O. WILSON, JR.**, *General Secretary*, 24 Bennington Road, Lexington 73, Mass. **DAVID E. ACKER**, *Assistant Secretary*, 210 Woburn Street, Lexington 73, Mass.

• 1940 •

Ralph Kochenburger has been awarded the Alfred Noble prize for 1950 for his paper "A Frequency Response Method for Analyzing and Synthesizing Contactor Servomechanisms," read at the 1950 meeting of the American Institute of Electrical Engineers. Ralph, who is now an assistant professor at the University of Connecticut, received the award at the January, 1951, meeting of the A.I.E.E. in New York. The award was the result of work performed at Technology as part of a U. S. Air Force-sponsored project.

The January 1 issue of *Life* magazine carries the picture of Claude Shannon in an article on talented young Americans who have made important contributions to the fields in which they work. Claude is associated with the Bell Telephone Laboratories which he joined during World War II and where he developed codes and ciphers for the armed forces. At present he is working on mathematical theories of communication with the aid of his wife who also is a mathematician. Joe Cowhey is the New London County chairman for the 1951 March of Dimes campaign. Joe entered the Duke University Law School in 1946, where he completed the three-year course in two years. After receiving his law degree, he was admitted to the Connecticut bar. Recently I received a letter from Milt Green who is doing graduate work at Columbia University and hopes to get his doctorate this June. Hurley Bloom who is a patent attorney with Lever Brothers recently moved to New York from Cambridge when the headquarters of the company changed cities.

Again I would like to repeat the appeal for class dues. At the 10th reunion in June, it was voted to pay \$.50 a year dues (\$2.50 for five years) into the class treasury. Although this notice has appeared in several issues of *The Review*, so far no contributions have been received by the secretary-treasurer. Any suggestions from classmates as to how to collect the class dues will be appreciated. And, as usual, don't forget to send Al news of yourself or about other classmates. — **ALVIN GUTTAG**, *Secretary*, 7114 Marion Lane, Bethesda 14, Md. **MARSHALL D. MCCUEN**, *Assistant Secretary*, Senior Project Engineer, Oldsmobile Division, Lansing 21, Mich.

• 1942 •

We have this month a letter from Jerry Coe, who is primarily concerned with continuing Lou Rosenblum as our Alumni

Council representative, but who also tells of his new position in General Electric as manufacturing engineer at the Waterford plant, which specializes in silicone products. Jerry is in charge of process engineering, plant engineering, and quality control for the plant and says that he finds the work in this field to be challenging. There are not many 1942 men in those parts, according to Jerry, but he has seen Lee Martin who is in Glen Falls, N.Y.

We've learned that Bob Wagner, with a fresh Ph.D. from Princeton, has gone to Buffalo to the research staff of the Du Pont film department. Monroe Brown, whose professional interests in recent years have apparently been largely with helicopters, has been made administrator of the research and development division of the Piasecki Helicopter Corporation of Morton, Pa. For news of our academic classmates: Bill Robertson recently addressed a section meeting of the American Institute of Mining and Metallurgical Engineers on corrosion. Alan Macnee, of the University of Michigan, has received the Browder J. Thompson Prize for the technical and literary merits of a recent paper on a differential analyser which appeared in the November, 1949, issue of *Proceedings of the I.R.E.* Harry Heineman, who took a master's degree from Columbia last year, is reported to be studying this year at the Sorbonne.

Six marriages have come to light this month: Constance Fischer to Edward Gartland in Quincy; Elizabeth Clark to Joseph McHugh in Newton; Esther Brock to Richard Gannon in Westboro; Marjorie Barry to John Barry in Cambridge; Alice Jury to George Spies in Woodhaven, N.Y.; and Meriam Sorkowicz to Bob Kraus in New York on December 17. Newly engaged are: Helen Foster and William Watkins, Susan Cable and John Senior, and Mary Robinson and Charles Ricker. No new children this time. — GEORGE M. KAVANAGH, *Acting Secretary*, 25 Eaton Court, Wellesley Hills 82, Mass.

• 1945 •

Your secretary has asked me to prepare the copy for this month's issue so I hope you will bear with me. This is my first attempt at being editor of class notes, and hope it shall not be my last. We have a lot of information on file from questionnaires that you sent in last spring in connection with the fifth reunion. However, any and all information that you can send along will be very much appreciated. We are planning, or rather hoping, that we can put in a good column for every issue; but we need your assistance to achieve our goal, so let's start sending along the news items.

Bouquets to the latest classmates to join the benedicts go to Bill Blitzter and Walter Nason. Judith Zana Lambert of North Plainfield, N.J., was wed to Bill on November 12 in Plainfield. Charlotte Ann Collyer and Walter were wed on December 28. In the dock to take the vows are Arnold Siegel and J. J. Strnad. Arnold's engagement to Rhoda Ottenberg was announced on October 31. Wedding dates have not been set. Arnold at present is studying at the University of Amsterdam. Edna

Louise Dawley is to become the bride of James John, better known as just J. J., on April 7. According to our information, J. J. is now vice-president in charge of engineering and production for Lempco Products, Inc., of Cleveland. — Notes of the changing times inform us that Jerry Patterson has been recalled to active duty by the Navy. He reported to the U. S. S. *Hector* on January 6. Jerry recently became a proud father for the second time and the new arrival has been named Mark. We extend best wishes and Godspeed. Maybe more of you will have received orders by now. We would appreciate hearing about changes in status so we can keep our records up to date.

Turning to the questionnaires, it is noted that Jerry Lott is working with Charles Pfizer and Company, Inc., in Brooklyn. Also note that Jerry lists his weight as 210 pounds. What's the answer, Jerry, home cooking? Since leaving M.I.T., Jim Hoaglund has been with Minneapolis-Honeywell Regulator Company, and at various times has been in Boston, Minneapolis, Los Angeles, and now is settled in Phoenix, Ariz. Jim indicates that he prefers the West to staid old New England. Being narrow-minded, I can't understand it. Saw Reg Stoops in Boston last summer, where he was checking on a job for American Cyanamid Company. It slips me now, but Reg is working on plastics of one type or another. It sounded very interesting, but the big words escape me. Charley Patterson is now at the St. Louis office of Spencer Thermostat Company of Charley's home town, Attleboro.

Slim Passfield is going to the University of Connecticut to "polish off higher degree," as Slim puts it. Slim previously was connected with Metal Hydrides, Inc., and Hawaiian Pineapple Company. A recent letter from Sam Moore indicates that his ship is operating out of San Juan, Puerto Rico. To use Sam's words, he is "navigator on this ship and hence have the job of obtaining the proper sextant angles to locate the buoys in the spots shown on the charts, and then persuading the Old Man, a damn fine skipper, to let me get a check on his 'fixes by instinct' before he goes right ahead and drops a buoy in what is always the right place anyway." This column wonders if Thomas Israel Stephenson, 3d, late of Knoxville, Tenn., has located any head-hunters in the wilds of the South American jungle. Tom's questionnaire lists no children and not married as yet.

In order that the many patient readers of this column should know to whom they have entrusted the couriership of the Class, maybe the tables should be turned. After leaving Notre Dame, and before he was forced to resign from the Navy, Clint Springer was attached to the Norfolk Navy Yard where he did considerable work on the U. S. S. *Williamsburg*. Seems the old boat wouldn't steer, and I don't believe the situation has been completely remedied yet. A relatively short stay with the A. C. Beals Company resulted only in Clint's excavation of Hope Street in Providence. It is believed by many that this feat of engineering delayed the traffic problem at least two years. Clint started with the Factory Mutual Engineering Division early in 1949, and a year

ago February transferred to Firemen's Mutual Insurance Company, a member of the Associated Factory Mutual Fire Insurance Companies, having branch offices in several of the major cities across the country.

In closing this column, I would like to reiterate a little of January's column in seconding the suggestion that we develop a more closely knit class. Granted it would have to be done by mail, but once the organization is set in motion, its maintenance would be very routine. By establishing nominal annual dues, we could provide the Class with a capital fund which would greatly facilitate our operation. We would appreciate hearing your views on the subject so that the wheels can be set in motion. Best wishes to all. Chick Street, Class President. — CLINTON H. SPRINGER, *General Secretary*, 44 Church Street, Bristol, R.I. *Assistant Secretaries*: WILLIAM J. MCKAY, 15 Barrett Street, Needham, Mass. EDWARD STOLTZ, Jr., Johns-Manville Sales Corporation, 505 Laconia Building, Wheeling, W.Va.

• 1946 •

This is a reminder to all of you members of the Class of 2-46 and 6-46 that our fifth reunion is approaching. Plans now formed propose a week-end gathering at M.I.T. on Saturday, June 9, and Sunday, June 10, preceding Alumni Day, June 11. We'll be housed in the new senior house, the Everett Moore Baker House, an ultramodern addition to the M.I.T. dorms built since our tenure at the Institute. Standout features of the program are the traditional class banquet Saturday night; an evening's entertainment provided by your classmates, tentatively labeled "'46 Frivolities of 1951"; and a boat trip from our front door, down the Charles, to an island in the broad Atlantic for a "Sunday in the Sun" — courtesy of Mort Bromfield. Luncheon, Saturday noon, will mark the beginning of our get-together, and breakfast, Monday morning, will wind it up. Wives are definitely invited. The list of people who have said they're coming is growing like Iowa corn on a moist July night, so don't hesitate for fear you'll be lonely. If you haven't received any of our mailings, drop a note to Ted Heuchling, reunion chairman for the Class of '46, at Building 32, M.I.T., and we'll see that you get all the latest information. — CLARENCE S. LYON, reunion committee, Room 20D-216, M.I.T., Cambridge 39, Mass.

• 1948 •

For the first time in a long while we have only one engagement to report: that of Elizabeth Priddy to John M. Wilson. John, who is a Theta Chi, is working for the Lederle Laboratories in Pearl River, N.Y. Weddings reported recently include that of Mary Foran to Earl Rittenhouse. The couple are living in New Jersey, where Earl is attending Rutgers University. Marilyn Keegan married Fred Lofgren on November 14 in Lynn, Mass., and they are living at 2 Prescott Street in Lynn. Mary Tompkins and James O. Starkweather were married December 17 in Summit, N.J. The Starkweathers will live in Millinocket, Maine, where Jim is with the Great Northern Paper Company.

News came through this month that our Class Secretary, Bill Zimmerman, has been working as a consultant at the Over-The-Top Manufacturing Company located in Picayune, Miss. This item seemed too good to keep out of the notes. — Hugh Craigie has been appointed controller of the Walpole operation of Holiday Brands, Inc. This plant will manufacture crystal-line coffee. Melvin Berkowitz is a sophomore at the Massachusetts College of Pharmacy, and he was cited for scholastic excellence recently. Francis Crowley has been called to active duty in the Marine Corps and assigned to a training course at the Marine schools at Quantico. Jay Block has been appointed to the staff of the Naval Ordnance Laboratory at White Oak, Md. He will be a chemist in the fuels and propellants division, explosives research department. (We hope that he will be around when the time comes for our class reunion.) — WILLIAM R. ZIMMERMAN, *General Secretary*, Kurt Salmon Associates, Inc., 3000 Albemarle Street, Washington, D.C. RICHARD H. HARRIS, *Assistant Secretary*, 26 Longfellow Road, Worcester 2, Mass.

• 1950 •

Another month, another issue, and another Army camp. Every time I sit down to write a column, I seem to be in another camp. For those of you who might care, I'm now at Fort Belvoir, Va., taking an eight-week course in engineering basic. After that — who knows; your guess is as good as mine, if not better. I have just arrived here and I haven't had time to look up any Technology boys, but give me time and I'll find some more. Jim Hooper writes that Don McGuire and Howard Bill both have been caught in the draft. It seems as if every letter I get ends with a word about the author's expecting to be called back in, drafted, or enlisting. I've

received a few letters from our boys telling of their experiences. Now don't be bashful. I don't bite, so write and tell the rest of the Class about yourselves.

A quote from a letter from Sigfrid Holmgren will tell us about some of the men on the West Coast: "Bud English is out here in Burbank working for Lockheed — we see him once in a while. Dick Amon is in Santa Monica with Douglas. Other than that, none of the boys are around here. I'm still working for the La Mesa Irrigation District, have a fine job, and already have a cost-of-living raise, so I'm living again." Bob Dehoney writes that he's at "A. B. Dumont's (the television man)." Garvin Moore writes that five '50 men are out at Goodyear Aircraft working in the aerophysics department on guided missiles: Claude Pasquier, Jerry Hirshfield, Murray Garden, Bob Boyden, and, of course, Garvin.

An excerpt from Jim Hooper's letter will tell us a little about life in Cambridge: "Quite a few of the Class of 1950 are with me at Harvard Business School. Among these are: Jack Jacoby, Mark Baxter, Norm Champ, Jack Pines, Ed Perkins, and Jim Jensen. Bob Weber is married and, at last report, was working at Grand Coulee Dam in Washington State. I also see Joe Fleming and Dwight Macauley who are working in Cambridge." Jim Baker says he's trying for a commission in the Medics. Good luck, Jim. Now that I'm here in the Corps of Engineers, I'm hoping that some of you R.O.T.C. officers decide to come in and make life a little easier here at Belvoir. Hurry up, boys. But come hell or high water, I receive good news each month from the news clippings. The members of the Class of '50 continue to fill the society pages with news of weddings and engagements. Engagements include those of: Joe Regan, now employed by Raytheon Manufacturing Company of Newton, to Norma Johnston; Jack Senese

to Anne Marie Shea; Bradford Joyce to Loeta Hudson; Harold Edward Holmes to Elizabeth Anne Burns on December 10; Robert Davis to Helen Francis Buschetta (Robert is now working for the cellulose products division of Hercules Powder Company); Robert Charles Geiss, now a metallurgist with Wright Aeronautical Corporation, Woodbridge, N.J., to Virginia Benham; Dan Test to Jean Kathleen Mittelehldt; Warren Watters to Chastine MacGregor Hardy; and Allen Bryson to Dorothy Ellsworth.

Weddings: Richard G. Haltmaier to Margaret C. McDonnell; Fred Robert Messina to Dorothea Mildred Giles; Robert Fisette to Nancy Ann Du Banevich; Robert C. Stout to Barbara Taylor Martin; Leonard Sayles to Risha Loah Levine; Lee Spetner to Julia Borvick; William Freeman to Alice Broadfoot; William Thomas Morris to Miriam Lemp; and Alfred Whitman to Patsy Stone.

Along with the good news of Dan Cupid's in the news clippings, we also receive some sad news. I don't know how many of you knew John Westcott, a 2d lieutenant in the Army. He entered Technology in 1946 together with the rest of us, but in 1948 he left and joined the Army. He received his commission last February after completing Officers Candidate School. In August, he became a member of the Thirteenth Engineer Corps and was sent to Korea. John was killed in action on December 2, 1950.

I now have a card index file of every member of the Class of '50 with address, and space for vital information such as present address, job, date of marriage, and so on. If you have information, send it in, we will file it, and if anyone cares to get in touch with you they can through me. Once again, don't be bashful or lazy. See you all next month. — JOHN T. WEAVER, *General Secretary*, 1772 East Tremont Avenue, New York 60, N.Y.

Monday, June 11, 1951 is *Alumni Day* at M.I.T.

Set this date aside—now—for:

- ★ Luncheon in Du Pont Court
- ★ Departmental reunions and forums
- ★ President Killian's Open-House Reception
- ★ The Alumni Banquet at the Copley Plaza in Boston
- ★ A new souvenir stein to add to your growing collection

What GENERAL ELECTRIC People Are Saying

F. R. ELLENBERGER

Air Conditioning Department

HEAT PUMP: The trend toward complete year-round air conditioning of residences as well as larger buildings has focused increased attention on the heat pump. Since 1932, when the residential heat pump was first being investigated in this country, 750 heat pumps have been installed in the United States; 60 per cent of the installations are in residences and 40 per cent are commercial. Heat pumps are currently being installed at the rate of approximately ten per week...

The functions of year-round air conditioning provided by heat pumps include heating in winter, cooling and drying in summer, air filtering, circulation, and ventilation. These functions are accomplished electrically, under automatic control, without combustion, and without fuel in the ordinary sense.

The basic principle is the same as is used in a common electrically operated refrigerator. A simple illustration of its operation can be obtained by imagining that a refrigerator with its door removed is placed against an open window. Then heat removed from the outdoor air by the refrigerator evaporator is dissipated from the condenser into the house. For cooling, the refrigerator could be placed outside the house against the same open window. Then heat removed by the evaporator would be pumped outdoors. Of course the domestic refrigerator is not designed for this application; its capacity would be much too small, and its operating economy for this type of operation would be low. . . .

Although it is still early to obtain a clear-cut picture of what the future holds for the heat pump, it appears to be entering a period of rapid growth, and heat pumps for year-round air conditioning in homes and other buildings will be appearing in greatly increasing numbers. . . .

It is sometimes refreshing, even if premature, to exercise the imagination by looking further into the future. In one conception of a "dream" version heat pump, the

heat pump is combined with some of the multitudinous equipment which our living standards demand in a single factory-produced package. Such a unit would serve as a complete utility core for the house and would provide a source of hot and cold water, conditioned air the year round, and heating and cooling for the associated appliances. Heat that is pumped from the freezing and cold storage compartments would be used to help heat the air and domestic water. Heat that is otherwise wasted in the kitchen exhaust and for evaporating moisture in clothes drying could be largely recovered. The heat pump, thereby, may serve some day as the central unit of the all-electric home.

General Electric Review
December, 1950



R. F. SHEA

Electronics Department

ELECTRONIC UMPIRE: The electronic umpire arose out of a definite need for a device to assist pitchers and batters in learning control and judgment. Other devices were in use or had been tried out for such purposes, but they either interfered with a batter's swing or were bulky and not easily transportable.

In addition to being able to call strikes, it was thought desirable to add speed measurement to the device, thus permitting a reasonably accurate appraisal of a pitcher's ability in terms of speed and control.

The electronic umpire is a portable two-unit device which can be set up in a matter of minutes anywhere where there is an a-c supply available. One unit is placed on the ground and carries a simulation of the home plate. Alternatively, it may be set flush with the surface of the ground. The other unit may be

located anywhere within a radius of 25 feet from the ground unit and provides an indication when a ball has passed through the strike zone, and an indication of its speed.

No lights or equipment other than the two units described are required. The strike zone is adjustable to suit batters ranging in height from five feet one inch to six feet five inches and speed in excess of 50 feet per second may be measured to an accuracy of 5 per cent.

National Electronics Conference
Chicago, Illinois
September 25, 1950



BERNARD VONNEGUT

Research Laboratory

RAINMAKING: Many farmers, ranchers, and civic-minded people in many parts of the country are now engaged in cloud seeding. In their efforts to produce more rain, these amateurs are releasing large quantities of seeding material which may well contaminate the atmosphere so as to hopelessly confuse the more careful experimenter and precipitation analyst.

The experiments of many of these rainmakers are carelessly carried out with little or no control over the dispersal of the seeding agent and are, for the most part, unrecorded. As a result, experiments of this sort contribute little or nothing to the knowledge of seeding techniques, while at the same time they may render valueless far more painstaking experiments carried out at the same time nearby. These rainmakers can seriously impede the progress of this new phase of meteorological science.

New England Assn. of Chemistry Teachers; Storrs, Connecticut
August 25, 1950

You can put your confidence in—

GENERAL  ELECTRIC

Typical set-up for measuring characteristics of r-f coil. Types 1330-A Bridge Oscillator, 821-A Twin T Impedance Measuring Circuit and a communications-type receiver. The oscillator is equally suited to use with other bridges such as the Type 716-C Capacitance Bridge and the Types 916-A and 916-AL R-F Bridges.



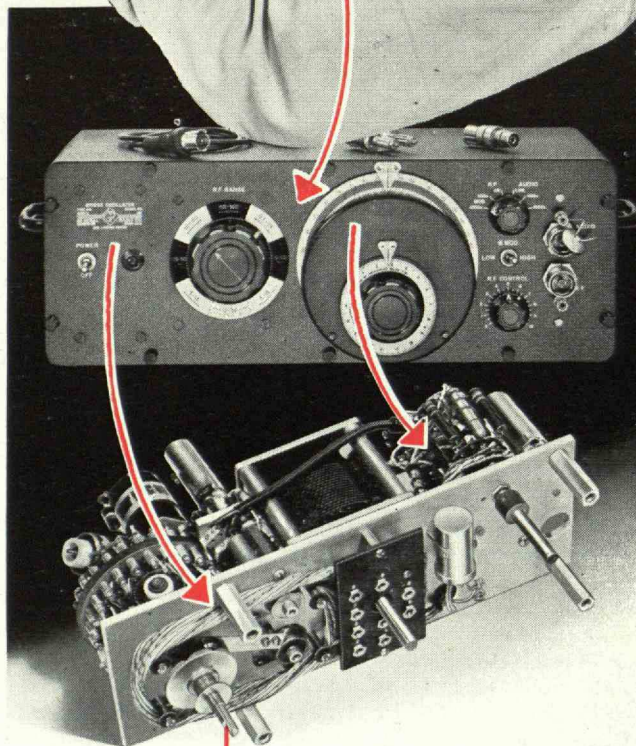
NEW **GR** Wide-Range BRIDGE OSCILLATOR

5 kc to 50 Mc—12 Volts Output

The new G-R Type 1330-A Bridge Oscillator is designed especially as a power source for bridge, antenna and general laboratory measurements. It is relatively inexpensive, has high output, excellent shielding and many operating conveniences. Among its features are:

- **WIDE FREQUENCY RANGE:** 5 kc to 50 Mc, carrier
- **THREE MODULATION FREQUENCIES:** internal a-m at line and at 400 c and 1,000 c, at two levels of approximately 30% and 60%
- **GOOD OUTPUT:** 12 volts, open circuit; $\frac{3}{4}$ watt into 50-ohm load
- **FREQUENCY ACCURACY:** Carrier — $\pm 2\%$ above 150 kc, $\pm 3\%$ below, no load. Audio — $\pm 5\%$ for 400- and 1,000-cycles
- **LOW LEAKAGE:** about 50 μ v per meter at 1 Mc, two feet from oscillator
- **COAXIAL OUTPUT jacks, cable and adaptors permit complete shielding from oscillator to measuring instrument**
- **LOGARITHMIC DIAL:** calibration logarithmic from 5kc to 15 Mc
- **INCREMENTAL-FREQUENCY DIAL:** indicates increments of 0.1% per division from 5 kc to 15 Mc
- **LOW DISTORTION:** between 1% and 6% at 60% modulation level; r-f distortion 3% over most of range
- **VERY COMPACT CONSTRUCTION:** panel relay-rack width, only 7 inches high; cabinet 9 inches deep
- **EASY SERVICING:** oscillator plugs out of shielding box and has servicing cable to test instrument

Type 1330-A Bridge Oscillator . . . \$525.00



Excellent mechanical construction throughout. Oscillator assembly plugs into deep brass box; double cover completes shielding. Note servicing cable permitting instrument to be tested on bench.

GENERAL RADIO COMPANY

Cambridge 39,
Massachusetts

90 West St., New York 6 920 S. Michigan Ave., Chicago 5 1000 N. Seward St., Los Angeles 38

